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ABSTRACT

Twenty-two authors contributed chapters to this collection of best practices in the education of students with mental disabilities. Section One, "Critical Issues for Consideration," contains six papers: "'New' EMRs" (Donald MacMillan); "Curricular Orientations" (James Patton and Edward Polloway); "Applying Curriculum for the Instruction of Life Skills" (Mary Cronin); "Incorporating Adaptive Behavior Deficits into Instructional Programs" (Daniel Reschly); "Career/Vocational Assessment" (Patricia Sitlington); and "Transition" (Roger Hoffman). Section Two, "Curriculum Content Areas for Consideration," contains 15 papers: "Arithmetic" (John Cawley et al.); "Art" (Nan Mercier and Susan Davison Jensen); "Career Development" (Pamela Gillet); "Use of Computers" (Ted Hasselbring and Laura Goin); "Creative Drama" (William Rickert and Jane Bloomquist); "Music" (Kate Gfeller); "Oral Language: Developing Pragmatic Skills and Communicative Competence" (Suzanne Robinson); "Physical Education" (Luke Kelly); "Reading" (Linda Higbee Mandlebaum); "Science" (James Patton); "Sex Education" (Jerry Caster); "Instructional Interventions to Improve Social Competence" (Laurence Sargent); "Social Studies" (Rick Lussie and Mary Stradley); "Vocational Education: A Source of Promise for Students with Mental Disabilities" (Raymond Morley); and "Written Language" (Edward Polloway and Thomas Decker). The final section contains one paper by David Hutchinson and Greg Robinson, titled "...a little bit about 'Where'," that discusses how all these ideas fit together when considering the concept of "Least Restrictive Environment" or LRE. (JDD)

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Best Practices In Mental Disabilities

Volume Two

Iowa Department of Education
Bureau of Special Education

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Best Practices In Mental Disabilities

Volume Two

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FOREWORD

When educators familiar with the first volume of Best Practices in Mental Disabilities heard that a second volume would be developed there was an expectation that this volume would be a sequential curriculum that could be used for students with mental disabilities. This was based, in part, from the chapters included in the first volume which dealt with variables successful teachers and support service personnel must deal with before considering content to be covered with the students they work with on a daily basis. For individuals who had those expectations, I have bad news. The second volume is not a curriculum. Sorry . . . but do I have a deal for you.

What if you held in your hands a monograph that consisted of many ideas to assist you in dealing with important issues that face the field of mental disabilities, as well as providing additional ideas in the curricular areas you teach to your students? Interested? Then on behalf of the other editors, please accept this copy of the second volume of Best Practices in Mental Disabilities.

Although it may appear to be a question of semantics, the second volume is truly not a curriculum. There is no scope and sequence. Many times students with disabilities are placed in curriculums and never "get out." This is especially true of curricular series that are adapted by self-contained programs in larger districts. To develop a sequenced curriculum was not the intent of this volume. Nationally known educators in the field of mental retardation were invited to author chapters in the their areas of expertise for the second volume. They were asked if they would be interested in sharing information about their areas of expertise with teachers who work with students with mental disabilities. Other than the basic format of each chapter, no restrictions were put on the authors, other than the content of the chapter had to be useful and practical for teachers. Not one author declined to do what was asked. Because of that fact, I am glad to share with you what I feel is a "Who's Who" in the area of mental retardation as chapter authors. Through their efforts, teachers should be able to use the ideas in the pages that follow to enhance their creativeness and ability to be flexible to meet the needs of individual students with whom they work.

Volume Two of the Best Practices in Mental Disabilities consists of twenty-two chapters divided into three sections. The first section, Critical Issues for Consideration, contains six chapters. Chapter topics were selected because of the impact these topics are currently having on our ever changing field. Chapter One gives an overall "picture" of the type of student we can expect in our classrooms in the near future, if they are not already there. Chapter Two focuses on different types of curriculum orientation. Chapter Three deals with a topic that has been slow in acceptance by those who work with students with mild disabilities, yet long over due; that being the application of curriculum for the development of life skills. Chapter Four stresses the need for the incorporation of adaptive behavior deficit skill training into instructional programs. A student must demonstrate a deficit in the area of adaptive behavior in order to meet the criteria for mental disabilities, yet many student IEPs are devoid of any goals in this area. Chapter Five discusses the merits of career/vocational assessment across the life span. The final chapter of this section, Transition, is an appeal for all teachers, at all levels, to become more involved in this area.

The second section, Curriculum Content Areas for Consideration, contains fifteen chapters dealing with traditional content areas (e.g. Arithmetic, Art, Music, Physical Education, Reading, Science, Social Studies) and the not-so-traditional areas as well (e.g., Career Development, Use of Computers, Creative Drama, Oral Language, Sex Education, Social Competence, Vocational Education, Written Language). A superb collection of thoughts and ideas!

The last section, Before you go . . ., contains a single chapter entitled, . . . a little bit about "Where", which discusses the possibilities of how these ideas fit together when considering the concept of least restrictive environment.

As with any major project, there are many individuals whose efforts enhanced and allowed the volume to come to fruition. To Drs. Patton, Polloway, and Sargent my thanks for their editing, writing, guidance, and support. I will miss the teleconference calls that spanned five time zones where Ed was winding his work day down, Larry and I were coming back from lunch, and Jim was getting up. To David Happe, my thanks for his copy editing and trying to deal with synonym overload with regard to terms like educable vs. mental and handicapped vs. disabled.

Finally, it has become commonplace to thank secretaries who assist in the typing of monographs. That will just not do in this case. Without the assistance of Jeri Burdick Crane, the second volume would never have been. Dealing with 29 authors from 11 states and their extremely kind secretaries is not an easy job. Throw in the fact that the chapter drafts came in on 9 different word processing programs involving six different types of computers and you can see why there is very little talk at this time about Volume Three! A heartfelt thanks to Jeri for her coordination with the authors, ability to meet deadlines when I was not, and her nimble fingers on the keyboard.

To you the reader, I hope this helps. That was our intention. Take care.

G. A. R.
October, 1988

Critical Issues For Consideration

Chapter One

"*New*" *EMRs*

Donald L. MacMillan

OVERVIEW

In this chapter changes in the population of children served as educable mentally retarded (EMR) in the public schools is examined. The use of the word "new" in the title should not be interpreted to suggest that a unique group of children, unlike those previously served, is currently populating the EMR programs. Rather, the evidence suggests that those currently enrolled tend to resemble a subset of the former group and indicates that some children resembling higher functioning trainable mentally retarded (TMR) have found their way into EMR programs (Polloway & Smith, 1983).

It is important to realize that the public schools have long served students representing a wide range of individual differences. For example, students differ in terms of age, gender, race, social class, achievement, and ability. Over the years the public schools have differentiated students according to ability by providing programs for the mentally retarded and gifted, reflecting the belief that differential education is needed for children who deviate markedly from the norm. Operationalizing what constitutes marked deviation has posed problems; that is, determining just how far up or down the intellectual continuum a child must score in order to warrant or necessitate special educational adaptations has been problematic.

The issue addressed in this chapter concerns the vacillation in setting criteria for defining those children whose low academic achievement in regular programs is due to low general intellectual functioning (as opposed, say, to a specific learning disability or emotional problem). Such children are classified as mentally retarded by school personnel, and provided special education. In the context of this chapter, the term "new" is used in reference to children currently classified as EMR, while the term "old" refers to those children classified as EMR in the late 1960s, predating court actions (e.g., Diana v. State Board of Education, 1970; Larry P. v. J. Wilson Riles, 1971) challenging the criteria for EMR eligibility.

Before considering these forces which changed the criteria for EMR eligibility let us consider mental retardation in the broader context, and what is meant by a child who is educably mentally retarded.

Definitions

In 1961, the American Association on Mental Deficiency proposed the following definition of mental retardation:

> Mental retardation refers to subaverage general intellectual functioning which originates in the developmental period and is associated with impairment in adaptive behavior. (Heber, 1961, p. 3)

This definition operationalized the upper cut-off for mental retardation to be approximately IQ 85, and constituted an "inclusive" definition of mental retardation, making sure virtually no child was denied services who might benefit from them.

As a result of professional criticism (e.g., Dunn, 1968), court action (e.g., Diana, 1970; Larry P., 1971), and socio-political concerns over the disproportionately high minority enrollments in EMR classes, the AAMD revised its definition of mental retardation in 1973 (Grossman, 1973). Further minor revisions occurred in 1977 and 1983. The current definition of mental retardation supported by the AAMD is as follows:

> Mental retardation refers to significantly subaverage general intellectual functioning resulting in or associated with impairments in adaptive behavior and manifested during the developmental period. (Grossman, 1983, p. 1)

Operationally, the 1983 definition sets the upper IQ limit for mental retardation at 70, but emphasizes that this is to be used as a guideline only (i.e., not an absolute standard), and that IQ scores up to 75 could still qualify, especially in school settings, if clinical judgment leads to the conclusion that impaired adaptive behavior is caused by deficits in judgment and reasoning.

The AAMD recognizes that all individuals who qualify for services as mentally retarded are not alike. That is, there is considerable variability in the problems presented by those categorized as mentally retarded. In order to cope with this diversity, the AAMD classifies within the mentally retarded population according to IQ levels. Cases where the IQ falls between 50-75 are classified as "mildly mentally retarded", those between 35-50 as "moderately mentally retarded", those between 20-35 as "severely mentally retarded," and those functioning below 20 as "profoundly mentally retarded." The reader should note that the AAMD classification scheme only roughly approximates the most commonly used educational classification scheme. While both classify by degree of mental retardation, educators have not traditionally used specific IQ cut-offs, but rather assessments of the best match between a child's functioning level and the program offerings. Furthermore, the terms used by educators are not the same. Educators term the higher functioning children as "educable mentally retarded" (or some similar term, e.g., educable mentally handicapped), the next level of children as "trainable mentally retarded", and then the lowest functioning group as "severely handicapped" or some similar term.

Prevalence of Mild Mental Retardation

Prevalence is a term which refers to the total number of cases of a condition at a particular point in time. In the context of mental retardation, prevalence refers to the number of people (or the percent of a population) classified as mentally retarded at any point in time. Prior to the court cases noted above, legislation, and changes to a more restrictive definition, the evidence suggested an overall prevalence rate of mental retardation (for all ages, birth through old-age) hovering around one percent of the total population (Birch, Richardson, Baird, Horobin, & Illsey 1970; Mercer, 1973). However, the prevalence rates varied by age, sex, socioeconomic status, and degree of retardation (MacMillan 1982). In an effort to determine what portion of all cases classified as mentally retarded are "mildly retarded" one can deduct those cases of severe retardation - known to exist at a rather stable rate.

Abramowicz and Richardson (1975) used IQ 50 as the upper limit for defining severe mental retardation. Using this figure as a criterion, they examined a number of studies, and wrote:

> A review of twenty-seven epidemiological studies, nineteen of which may be considered to have reliable prevalence data on severe mental

> retardation in older children, shows a remarkable consistency in the prevalence of severe mental retardation in children, which approximates 4 per 1000. (p. 37)

Using an upper limit of IQ 35 (consistent with the AAMD classification scheme), Eyman and Miller (1978) estimated that prevalence to be 1.3 percent of the population are classified as severely or profoundly mentally retarded. Given the traditional use of IQ 50 to differentiate those cases of mental retardation due to biomedical causes and those for which no biomedical cause can be identified, we will use the Abramowicz and Richardson (1975) figure of 0.4% in the following estimates.

The reduction in overall rates of mental retardation between 1970 and the present has been noted by many (e.g., Forness, 1985; Lambert, 1981; MacMillan & Borthwick, 1980; Polloway & Epstein, 1985; Polloway & Smith, 1983). This reduction in the prevalence of mental retardation has not resulted from any significant change in the rate for severe and profound retardation, and probably not in cases of moderate retardation. Rather, this reduction in numbers is, in large part, due to dramatic change in cases of mild mental retardation - that segment that largely populated EMR classes in 1970. In California, for example, a mandated reassessment of all EMR students using different criteria (i.e., different IQ cut-offs and weighting nonverbal portions of the test heavily) resulted in the decertification of between 11,000 and 14,000 EMR students in the early 1970s. States adopting the revised AAMD definition with its lower IQ cut-off immediately made ineligible those students with IQs in the range of 70-85 from receiving services. In other words, by changing the definition of mental retardation and the criteria for eligibility, states "cured" mental retardation in a substantial number of cases, although as MacMillan (1982) noted, "...learning problems cannot be mandated or legislated away" (p. 18). What was accomplished, however, was that this segment of children (i.e., IQ 70-85 with general learning problems) would not be eligible for services as students with mental retardation.

Polloway and Smith (1983) reported federal data on the number of retarded children served by the public schools in the various states between 1976-77 school year and 1980-81. During this period, the nationwide decrease in the percentage of students served as mentally retarded was 12.9%. Twenty states and the District of Columbia decreased in the percent of mentally retarded students by 20% or more. Conversely, several southeastern states reported increased rates during this period (Alabama, Arkansas, Mississippi) between 10-20%. As will be discussed later, variability between states is the rule rather than the exception. Furthermore, California reported only a 9.2% reduction during this time frame, probably because of the change in policies resulting from Diana, which served to reduce EMR enrollments well before 1976-77.

Forness (1985) also examined federal data reflecting the decrease in mental retardation and the increase in learning disabilities during a five-year period (1976-77 to 1981-82). While the number of school children classified as mentally retarded decreased from 970,000 to 802,000 (a 17% reduction), the number of LD children increased from 797,000 to 1,627,000 (a 104% increase). The 1976-77 school year provides a baseline figure representing a time before P.L. 94-142 was operational to any degree, while 1981-82 represents the year at which the law was intended to be fully operational for all handicapped children, aged 3-21.

Table 1 shows the steady decline in the percent of children classified as mentally retarded and the corresponding increase in the prevalence of learning disabilities between the 1976-77 school year and the present. The reduction in the percent of mentally retarded students is due largely, if not exclusively, to shifts in defining mental retardation as a more exclusive concept. However, it should be noted that the magnitude of the change in prevalence of mental retardation reflected in these national figures tends to obscure the variability in rates among states. Table 2 shows the most recent state figures showing the percent of school children classified as mentally retarded and learning disabled.

Table 1

Percent of School Children
Classified as Mentally Retarded and Learning Disabled
Under Education for All Handicapped Children Act Since 1976-77

	% Total Population MR	% Total Population LD	% Special Ed. Pop. MR	% Special Ed. Pop. LD
1976-77	2.16	1.80	26.0	21.5
1977-78	2.14	2.21	24.9	25.7
1978-79	2.12	2.66	23.2	29.1
1979-80	2.09	3.06	21.7	31.9
1980-81	2.02	3.57	20.0	35.3
1981-82	1.96	4.05	18.7	38.6
1982-83	1.91	4.39	17.8	40.9
1983-84	1.86	4.62	16.9	42.0
1984-85	1.84	4.72	16.4	42.2
1985-86	1.68	4.73	15.3	43.1

Source: Data for years 1976-77 through 1983-84 are from National Center for Education Statistics, The Condition of Education (Washington, D.C.: U.S. Department of Education), Table 4.1, p. 1982). Data for years 1984-85 and 1985-86 are from Office of Special Education and Rehabilitative Services, Ninth Annual Report to Congress on the Implementation of the Education of the Handicapped Act (Washington, D.C.: U.S. Department of Education, 1987), Table 2, p. 5. All percentages reflect data for children ages 3-21 in the 50 states and the District of Columbia.

Table 2

Percent of Children Served as Mentally Retarded and Learning Disabled Under Chapter 1 of ECIA (SOP) and EHA During School Year 1985-86 by State

State	% MR	% LD
Alabama	4.70	3.88
Alaska	0.65	6.55
Arizona	1.10	5.29
Arkansas	3.16	5.05
California	0.65	5.11
Colorado	0.81	3.93
Connecticut	1.13	6.38
Delaware	1.79	8.02
District of Columbia	1.59	3.50
Florida	1.76	4.26
Georgia	1.73	2.22
Hawaii	0.77	4.26
Idaho	1.51	4.37
Illinois	1.60	5.14
Indiana	2.35	3.47
Iowa	2.47	4.41
Kansas	1.50	3.97
Kentucky	3.02	3.40
Louisiana	1.52	4.23
Maine	2.18	4.78
Maryland	1.08	6.59
Massachusetts	3.57	5.86
Michigan	1.39	3.77
Minnesota	1.79	5.32
Mississippi	2.44	4.83
Missouri	2.23	5.16
Montana	0.89	4.90
Nebraska	1.85	4.56
Nevada	0.65	5.12
New Hampshire	0.70	5.99
New Jersey	0.79	6.41
New Mexico	0.89	4.54
New York	1.19	5.49
North Carolina	2.19	4.40
North Dakota	1.53	4.34
Ohio	2.84	3.98
Oklahoma	1.97	4.61
Oregon	1.00	5.66
Pennsylvania	2.56	4.38
Rhode Island	1.00	9.44
South Carolina	3.07	3.89
South Dakota	1.36	3.99
Tennessee	1.88	5.31
Texas	0.93	4.98

State	% MR	% LD
Utah	0.93	4.98
Vermont	2.43	4.64
Virginia	1.59	4.72
Washington	1.18	4.59
West Virginia	2.76	4.88
Wisconsin	1.62	3.90
Wyoming	0.83	5.08
50 States and D.C.	1.68	4.73

The figures represent children 0-20 years old served under Chapter 1 of ECIA (SOP). Number of children served is a percent of the students enrolled in Fall, 1985 (Pre-kindergarten-Grade 12). State enrollments are estimated by the Center for Educational Statistics. Data as of October 1, 1986.

Note the variability in the rates of the percent of children classified as mentally retarded and learning disabled; rates ranging from over 4.00% in Alabama for mental retardation to many states under 1.00%, while rates for learning disabilities go as high as 9.44% in Rhode Island.

Variability in the Prevalence of Mild Mental Retardation

As noted above, variability in the prevalence of mental retardation has long been noted. Of importance to the present discussion is the fact that prevalence rates have been higher for (1) school-age children, (2) males, (3) lower socioeconomic status children, particularly during school age, and (4) certain ethnic minority groups (i.e., black, Hispanic). The variation that has led to the most controversy has been the disproportionately high enrollments of black and Hispanic students in programs for EMR children.

Using the Abramowicz and Richardson (1975) figure of 0.4% of the population as having IQs under 50, one can get a rough estimate of the percent of school children in each state who are EMR by subtracting this 0.4 from the total percentage of children served as "mentally retarded" shown in Tables 1 and 2. However, this provides a very crude estimate and one must be cautious even when applying state figures to school districts within a given state. The reason for this is that prevalence tends to be higher in those geographic areas of a state where pockets of poverty exist, particularly when this poverty area contains minority group families. The higher prevalence of mild mental retardation in populations of poor minority peoples has made it difficult (and sensitive) to attribute this prevalence to poverty, ethnicity, or the interaction of the two. It is clear that this higher prevalence among minority students served as a major focus of the challenge to special education in the 1970s.

In California in 1969, 8.9% of the total school population was black and 15.2% was Spanish-surname. That same year, 27.1% of the students identified as EMR in the state were black and 28.2% were Spanish-surname students (Simmons & Brinegar, 1973). Such figures of disproportionate minority enrollments in EMR programs were central to the plaintiff's cases in Diana v State Board of Education (1971) and Larry P. v Wilson Riles (1971). The judge in whose court both cases were heard, Robert

Peckham, was apparently convinced that these disproportionate enrollments were largely due to thediscriminatory nature of intelligence tests administered after children were referred by teachers for learning difficulties. This position has been advanced by Mercer (1973) when she concluded that "Children of all ethnic groups were referred in their approximate proportions" (p. 111). If so, it followed that the reason for disproportion had to come between teacher referral and actual placement -- during the psychological evaluation. Gordon (1980) has faulted Mercer's conclusion, noting that she failed to differentiate those referrals where suspicion of giftedness and learning disabilities, notoriously "white" categories, were combined with those referred for suspected mental retardation.

Reschly (1985) argued that it was not overrepresentation, per se, that gave rise to criticism of EMR programs. He reasoned that the overrepresentation of black children in other programs (e.g., Head Start, Follow Through, Chapter 1) has been neither criticized nor litigated. Rather, it was the combination of overrepresentation coupled with stigma associated with the EMR label and perceptions of poor quality education that precipitated the challenge to EMR programs. Unquestionably, the undercurrent of possible hereditary bases for racial differences in intellectual ability increased the emotional responses of the critics.

Reschly (1985) has also called for a distinction between (1) the percent of EMR enrollment by group and (2) the percent of a group in EMR programs in an effort to understand the magnitude of overrepresentation. He illustrated with data from California where in 1968-69, black students constituted approximately 9% of the school population and slightly over 25% of the EMR enrollments. Yet, only about 3% of black children were classified as EMR. His analysis of data from other parts of the country (e.g., New Jersey, Office of Civil Rights data) supported his point that despite high percentages of the EMR population being black, the percent of black children classified as EMR is extremely low.

Changes in Proportions Since 1970

As noted previously, the Diana case led to the decertification of between 11,000 and 14,000 EMRs in California. Yet, Lambert (1981) reported that despite a drastic reduction in the absolute number of children classified as EMR, this decertification program and the institution of new criteria for eligibility had relatively little impact on ethnic disproportion. Table 3 shows the percentages of enrollments in EMR programs for three ethnic groups for years preceding and following the imposition of an intelligence test moratorium arising out of the Larry P. case. Essentially, the moratorium coupled with new criteria and a lower IQ cut-off, resulted in fewer minority and majority children enrolled in EMR programs. However, the disproportion remained in about the same magnitude. More recent evidence from California suggests that the disproportion has continued. Special Education Pupil Count data for the 1981-81 school year the categories mentally retarded and learning disabled revealed that black children constituted 17.5% of the former group and 13.8% of the LD category, while comprising only 9 to 10% of the school population.

The problem of overrepresentation of minority children in EMR programs has been reported nationally (e.g., Heller, Holtzman & Messick 1982; Polloway et al., 1985). In New Jersey, black children constituted 17.8% of the public school population, yet 43% of the students identified as EMR in that state (Brady, Manni, &

Winikur, 1983). Smith (1984) reported that in five Ohiocities there were three black students assigned to EMR programs for every white student. The data reported by the Comptroller General (1981) suggests that overrepresentation of minority children in EMR programs continues despite full implementation of PL 94-142 and its provisions for least restrictive placement, parental involvement, and nondiscriminatory testing.

Table 3

Proportion of EMR Children of Three Ethnic Groups for Selected Years in California

Year	%Black	%Caucasian	%Hispanic	Total
1969[a]	27.10	43.10	28.10	55,519[a]
1973-74[b]	24.56	50.86	22.74	35,110[a]
1974-75[b]	22.61	53.35	22.20?	
1975-76[b]	24.75	50.89	21.93?	
1976-77[b]	25.43	49.54	22.44?	
1977-78[b]	23.22	51.66	22.64	19,370

[a] Figures in this row and total for 1973-74 based on Simmons and Brinegar (1973).
[b] Figures in these rows based on Lambert (1981).

A major effort to examine minority overrepresentation in special education was reported in a National Academy of Sciences (NAS) Panel Report (Heller, Holtzman, & Messick, 1982). Office of Civil Rights data from 6,040 school districts throughout the nation were analyzed for 1978. Racial or ethnicity disproportion was found to be a national phenomenon, however regional variation was dramatic - southern states were consistently high in disproportion while it did not appear to be a problem in Northeastern or Midwestern states. Furthermore, racial disproportion was highest in districts with enrollments over 30,000 students (i.e., larger districts). Nationwide statistics revealed that the proportion of Hispanic students in EMR programs was slightly lower than that of whites. However, in 26 of the 31 states having 10 percent or more minority enrollments the Hispanic proportion in EMR was higher than for whites. EMR enrollments were further found to contain a disproportionately high number of males, a difference of much greater magnitude in EMR compared to TMR programs. Regional variation in gender of EMR students did not show the differences that were reported for race or ethnicity. This large scale analysis confirmed the ethnic disproportion reported in more regional studies, identified regional differences, and reported variation by gender.

EMR Students: Changes in Characteristics and Interest by Professionals

EMR in the 1960s

It is instructive to examine the research literature on EMR (or students with mild mental retardation) during the two periods under consideration. Why has the amount of research on mildly retarded individuals diminished so dramatically over the intervening years (Bartlett, 1979; Haywood, 1979)? Several possible reasons exist, among which are the following:

1. The old EMR population attracted those interested in cognitive psychology because it contained many children functioning at cognitive levels which permitted using traditional learning tasks employed with nonretarded populations.

2. The same psychologists studied subjects with mild mental retardation as a means of studying normative development, and to test general theories of learning and development. Individuals who were mildly retarded were seen as differing in degree, rather than in kind, when theory testing was undertaken. Sometimes, the validity of theories explaining the behavior of persons with mental retardation was tested.

3. Due to the disproportion of poor minority children in the EMR population, they attracted those interested in examining the impact of poverty as a possible causal agent in developmental retardation.

4. The EMR population was viewed by many as containing at least two subgroups of children: genotypically retarded children and a phenotypically retarded group who were genotypically normal. The conventional tests of intelligence and related measures were seen by these investigators as failing to differentiate these two subgroups.

The research literature on mental retardation published in the 1960s and early 1970s abounds with studies comparing EMR samples with nonretarded samples in efforts to understand differences in attentional, verbal learning, memorial processes, use of mnemonics, and the like (see Ellis, 1963, for reviews of much of this literature). Furthermore, findings from these studies were used to test cognitive theories (e.g., Piagetian theories) and to formulate theories specific to persons with mental retardation (e.g., Ellis' Stimulus Trace Theory). Ultimately, leading spokespersons engaged in lengthy debate concerning individuals with mild retardation (i.e., cultural familial mental retardation). This debate was referred to as the "developmental-difference controversy" (Zigler & Balla, 1982). The point to be emphasized is that the old EMR population was of interest to leading research psychologists due to the fact that the population contained substantial numbers of children who cognitively resembled their nonretarded peers. As a result, considerable insight was gained into how these children processed stimuli cognitively and how they differed from their nonretarded peers.

A frequent comment heard from observers in EMR classrooms during the 1960s was that a certain number of these students who were admittedly limited in their mastery of school subjects were nevertheless "streetwise." Furthermore, many of those students who were seen as streetwise (sometimes referred to as the "six-hour retarded" because they were considered "retarded" only during school hours) were poor minority children. Given the prevalent notions of the 1960s concerning the relative importance of environment in determining intellectual development, other scientists saw this poor segment of the EMR population as a promising group with which to examine the malleability of intelligence via early intervention. During this era, extensive intervention projects were initiated with the intent of preventing developmental retardation.

The observation that EMR programs contained two types of children led to experimental efforts to separate the "truly retarded" (i.e., genotypically retarded) from the "apparently, but not really, retarded" (i.e., phenotypically retarded). A variety of evaluation and assessment procedures were tried with varying degrees of success. For example, Budoff (1967, 1970) used gains (or no gain) on Kohs block tasks following instruction as an indication of those children capable of higher level performance. Jensen (1970) studied the utility of performance on laboratory learning tasks requiring different processes (referred to as Type I and Type II) for differentiating the two separate groups. Mercer (Mercer & Lewis, 1977) devised an elaborate assessment package (System of Multicultural Pluralistic Assessment - SOMPA) in an effort to provide a more culturally unbiased evaluation for children. All of these investigators sought ways of differentiating the population of students with mild mental retardation, and thereby avoiding erroneous classification.

The foregoing illustrates how much research activity in the field of mental retardation was conducted during the 1960s and early 1970s. In fact, much of our understanding of the cognitive and learning characteristics of the mentally retarded population is based on investigations where the sample had mean IQs close to, or exceeding, the current upper limit for defining mental retardation (Grossman, 1983). To illustrate just how drastically things have changed, one need only consider Edgerton's classic follow-up study (Edgerton, 1967) of residents of Pacific State Hospital who had successfully rehabilitated and lived in the community. The mean IQ of the 110 original subjects was 65! The average IQ of institutionalized residents successfully released into the community was within 5 points of the upper limit for mental retardation today! Obviously, caution must be exercised in extrapolating from findings of research conducted during the 1960s to today's population. Current residents of institutions function at much lower levels than Edgerton's subjects, and the experiences encountered in the community by Edgerton's subjects were far different than what awaits the more debilitated individuals who are released into the community today. Similarly, extrapolating from research conducted on EMR samples in the 1960s to today's EMR population is every bit as hazardous. Polloway and Smith expressed it in the following passage: "A significant change in the population served under the EMR label and, in a sense, a redefinition of the term mild retardation has coincided with decreasing interest in this field" (1983, p. 149). How is the EMR population of today different? Let us consider this question.

Fewer in Number

The children in EMR classes today continue to overrepresent black children, despite an overall reduction in the total number of children identified as EMR. Hence, one comparison suggests that EMR enrollments have shrunk dramatically; that is, there are fewer students receiving special educational services under the EMR label. One important question to which we will return concerns the educational plight of those children who are no longer EMR-eligible due to shifts in definition and criteria for eligibility.

Generally Lower Level of Functioning

A most obvious change in EMR characteristics that accompanied the change in definition is that the average ability level of children in EMR programs today is lower than it was in the era when IQ 85 was the upper cut-off for eligibility. MacMillan, Meyers, and Morrison (1980) described what happened in California in the decade following 1969:

> The result of activities since 1969 is a depletion of EMR classes, with EMR openings filled by some children more severely debilitated, who in the past would have been programmed in classes for trainable mentally retarded (TMR) students..." (p. 111)

Additional support for this belief comes from Polloway and Smith (1983) who noted that the pattern for EMR classes serving children who are identified as culturally familial mentally retarded and who lack a specific pathological cause for their retardation has changed. Increasingly, EMR programs are serving children with Down Syndrome, and children who prior to public school enrollment were served in TMR preschool programs. This latter points suggests diagnosis occurring at an earlier age than was common for mild retardation in the 1960s. Absent from many EMR classes today are those streetwise students described by some as six-hour retarded children during the 1960s.

MacMillan and Borthwick (1980) reported on 151 EMR students attending school during the 1978 and 1979 school years, after the Diana and Larry P. cases had been tried in California. The authors argued that many professionals advocated educational treatments of these children in 1978 based on their impressions of the abilities of children attending EMR classes in 1960. That is, some professionals assumed there were no differences between the population of 1969 and that of 1978. As such, mainstreaming was being advocated extensively. However, in 1978 only 12 of the 151 students were mainstreamed, and in 1979 only 27 (although 9 of this 27 had been reclassified as "normal" before the 1979 school year began). We discounted the possibility that the schools were not complying with the least restrictive environment principle of PL 94-142 because of the trepidation evident in California school administrators for doing anything that could lead to a court case. Rather, we concluded that the most plausible explanation for the relative lack of mainstreaming (particularly for academic instruction) pertained to the degree of disability manifested by the 1978-79 population. "We concluded that |in| the judgment of those responsible for developing the Individual Educational Plan (IEP), the EMR population studied was 'unmainstreamable'" (MacMillan & Borthwick, 1980, p. 157).

Further support for the lower general achievement came from a survey of EMR teachers following the massive decertification of this population in California (between 1969-72). These teachers reported that the children remaining (i.e., those not decertified) were more patently disabled, in need of intensive individual instruction, and unable to profit from group instruction (Meyers, MacMillan & Yoshida, 1975). In yet another observational study of more than 900 children with mental retardation, few significant differences between EMR and TMR classrooms in actual on-task behavior were noted (Forness, Guthrie, & MacMillan, 1981). A survey by Polloway and Epstein (1985) of professionals and authors in special education revealed that they also saw a need for evidence on the characteristics of the "new EMR" students currently enrolled in programs. Current data (i.e., since the more restrictive definition) describing the characteristics of these children are simply lacking.

One reason for the appearance of greater numbers of children with known etiologies (e.g., Down Syndrome) in EMR classes is evident in California. California decided to combine several mild disability categories (EMR, LD, BD) into a single Learning Handicapped (LH) category, and to combine TMR, severely emotionally disturbed, and severely and profoundly mentally retarded categories into one Severely Handicapped (SH) category. Parents of Down Syndrome children, who had not previously objected to TMR programs for their children suddenly sought to avoid the SH designation for their children and pressed for enrollment in the LH program.

The description of children and adolescents in EMR programs provided by Polloway, Epstein, Patton, Cullinan, and Luebke (1986) illustrates these changes in characteristics of students in EMR programs. Among the findings reported was that gender and racial disproportions continue (more males and blacks). Consistent with the MacMillan and Borthwick (1980) finding, very few students spent a significant proportion of their school day in mainstream settings. As one would predict, if recent students in EMR programs are more debilitated, Polloway et al. (1986) found that the younger children in their sample "were identified virtually at the initiation of their school careers" (p. 7). The average age of initial identification was 5 1/2 years for the younger sample as compared to average ages of 7 1/2 years for males and almost 8 years for females in their older sample. Further, the average IQ for the younger subjects was somewhat lower than was true for the older sample.

Gottlieb (1981) wrote, "the category of EMR appears to be reserved for the lower end of the EMR IQ range usually for children having an IQ of about 65 or lower" (p. 124). What limited evidence exists on the characteristics of the new EMR consistently supports Gottlieb's point and the contention that those being served are functioning at considerably lower levels than did their 1960s counterparts. Further, the EMR category now contains a substantial number of children with known, or suspected, biomedical etiologies which was relatively uncommon in the earlier period. The current stereotyped "EMR student" appears to be identified prior to entering school or immediately upon entry. The more common pattern in the 1960s was for the child to enter school as a normal student and be referred and evaluated after spending a couple years in regular school programs with more modest interventions attempted to accommodate their academic difficulties (Mercer, 1973).

Validity of our Knowledge Base

MacMillan et al. (1980) questioned the validity of the research base, developed during the 1960s and 1970s, for "new EMR" children. They further suggested that findings in the mild mental retardation literature must be interpreted in light of the time-frame in which the sample was secured. As they noted, "for example, many of the children in a mildly retarded sample in a study conducted in 1965 would be 'nonretarded control' subjects today if they achieved an IQ of 75 to 85" (MacMillan et al., 1980, p. 112). Due to changes in population parameters one must be cautious extrapolating from this earlier research base when considering how children in EMR programs compare to nonretarded children on attention, verbal mediation, metacognitive processes, memory, and a host of other cognitive and learning variables. Maybe more importantly for the present discussion, the time-period specific validity of educational evaluation findings may be of little relevance for current educators. This issue will now be discussed.

Educational Programming for EMRs.

Most populations of exceptional children require educators to modify HOW the children are to be taught. That is, with children having sensory impairments or physical disabilities the educator must present learning tasks and require responses to those tasks which accommodate the sensory or physical impairment. This is also somewhat true for LD children, as well. However, for children who are mentally retarded educators modify both WHAT and HOW the child is to be taught (MacMillan 1982). Educators have limited time to work with children. They must decide how that limited time can be most efficiently spent in order to affect the best result for that child when they exit the school as an young adult. In the early 1960s, EMR programs often did have a sequenced curriculum with specified objectives stressing personal, social, and vocational competence; academic tool subjects tended to be taught in the context of daily living and vocational applications. While Judge Peckham, in his opinion regarding Larry P., characterized these EMR programs as "dead-end" classes, the empirical evidence simply did not support such a clear-cut conclusion (MacMillan & Meyers, 1980).

While the efficacy studies have been criticized methodologically, one study (Goldstein, Moss, & Jordan, 1965) has been generally regarded as well-designed. Children randomly assigned to regular and special classes following kindergarten were compared over a four year period on achievement and adjustment. The authors then conducted a secondary analysis by separating the experimental (i.e., special class) and control (i.e., regular class) subjects into subgroups with IQs above or below 80. This procedure has been criticized (Guskin & Spicker, 1968), but the findings are so cogent to the present discussion that they are presented with a caution to the reader to interpret them tentatively. Goldstein et al. (1965) found that for those subjects with terminal IQs above 80, achievement in the regular class was superior. For those with terminal IQs of 80 or below, however, achievement was superior in the special class. Since students in today's EMR programs have IQs of 70 or below, it would be interesting to re-examine the old EMR curriculum with its emphasis on personal, social, and vocational development in contrast to the more common recent emphasis on narrower academic subjects.

The question of WHERE to educate children identified as EMR preoccupied the field for far too many years. The National Academy of Sciences panel (Heller, et al. 1982) rightfully focused upon the kind of instruction provided students rather than the setting in which instruction is delivered. Whether individualized education plans insure the proper curricular emphasis is doubtful, as the IEP provided a procedural step but cannot insure good judgment. Given the change in population characteristics of students labeled EMR, it is time for attention to be devoted to re-evaluating the appropriateness of WHAT and HOW these children are to be taught. Is the current academic emphasis appropriate? Which new "EMR" children, and under what conditions can they be successfully mainstreamed? Some of these questions are empirical in nature and call for research. Others are more philosophical and require careful consideration by those best qualified to insure that what we do is right for these children and not simply expedient.

The concerns raised thus far focus on what is best for the children remaining in the EMR category. However, the changes that have taken place indirectly affect that segment of the school population that would have been eligible for EMR services under the more inclusive definition of the 1960s. What has happened to the present day counterparts of these higher functioning students during the 1960s? We will now turn our attention to this group.

Marginal Learners: IQ 75 to 85

At the time special education for EMR children was challenged in the literature and in the courts, the critics never denied that the children in question were having academic difficulties. Rather, they questioned whether the children were really retarded, and whether the instruments used in the diagnosis were discriminatory against certain racial and ethnic groups. Other questions challenged traditional EMR programming. With the court actions, passage of PL 94-142, and changes in the AAMD definition to a lower IQ limit, a substantial number of children were deemed ineligible for EMR programs. MacMillan, Hendrick, and Watkins (in press) observed that most critics viewed these developments as "victories" since the system changed in response to the challenge mounted. However, few have returned to examine whether these changes have had effects on the children continuing in EMR programs, the group referred to as marginal learners (no longer eligible), or the regular class students into whose classes the marginal students have been placed. We focus here on only one of these groups - the marginal learners.

As part of a federally funded project, this author along with colleagues (C. Edward Meyers, Roland K. Yoshida) studied students decertified as EMR and returned to regular classes following the Diana decision. For comparative purposes, we contrasted this group of decertified students with a sample of children who had remained in regular grades throughout their schooling, but who had achieved consistently in the lowest quarter of their classes. On standardized achievement tests, the decertified group achieved significantly lower than this low-achieving regular class sample. Further, their level of achievement was several years below the grade level at which they were placed. The general pattern which emerged for the decertified children was, at best, a marginal educational existence in regular grades.

With the dramatic increase in LD enrollments over the past 10 years, one might speculate that the no longer eligible segment of the old EMR population are having their special educational needs met in LD programs rather than EMR programs. However, a number of authors (e.g., Forness, 1985; Forness & Kavale, 1984; Polloway & Smith, in press; Smith, Polloway, & Smith, 1978) have concluded that the current students with IQs between 75-85 reside in an educational "DMZ," or "no man's land" where students are ineligible for any special educational services. The reason is that the identification of learning disabilities usually requires a demonstration of a "severe discrepancy" between aptitude and achievement. With IQs in this range, it becomes difficult to establish a discrepancy, since low achievement can always be explained in terms of the low IQ. As Forness (1985) wrote: "It is therefore quite possible that children with IQs in that general range might never qualify as LD, no matter how low they score on achievement measures" (p. 39).

What appears to have happened to the "old EMRs" with higher IQs, the present day marginal learners, is that they are enrolled in regular education programs in great numbers. As MacMillan et al. (in press) noted, this is viewed as desirable from the perspective of those who argued they had formerly been inappropriately placed in special education and labeled EMR. However, the very real low achievement which led to their certification in the 1960s was not caused by intelligence tests or labels -- it preceded evaluation and labeling. How are these children, who have avoided labeling and special education placement faring educationally? Are their achievement problems addressed while in regular grades and are they performing as "normal" students?

Equality vs. Excellence

MacMillan et al. (in press) contrasted the influences that led to Diana, Larry P., and PL 94 -142, which they referred to as a press for equality, with the current push for excellence exemplified in the report of The National Commission on Excellence in Education (1983). During the late 1960s and early 1970s criticism abounded regarding the discrimination and inequality inherent in special EMR classes for minority group children. The reasoning went that the achievement and adjustment of these children was detrimentally affected by labeling and segregation into special classes. Hence, the move to get these children decertified was advanced as promoting more equal educational opportunity for these children. Largely through the courts and legislation, this goal was accomplished.

During the early 1980s, however, another force has emerged in public education, promoting a return to basics and high standards. The report, A Nation at Risk, expressed outrage at the lack of standards in public education. High school diplomas were portrayed as meaningless because recipients frequently were barely literate. The Commission, which deplored the smorgasbord of electives that pervaded American schools during the 1960s and 1970s, called for an upgrading in standards and a return to basic academic subjects. One manifestation of the press for excellence has been the passage of legislation in some 40 states requiring minimum competency tests (MCTs), frequently required in order to graduate from high school. Let us consider the effects of this press for excellence as it affects the educational careers of the educationally marginal learners, who will be held to these newer and tougher standards.

The higher functioning students in the EMR programs of the 1960s were believed to be afforded better educational opportunity in regular programs than in special EMR programs. However, even the most ardent advocate for this group of children did not deny their educational problems. Rather, the belief was that, on balance, they would fare better as adults having been exposed to the regular school curriculum and interacting with nonhandicapped peers than they would fare were they to continue in the EMR program. No one suggested that future valedictorians would come from their ranks, and "better achievement" in the discussions of the times suggested reliable differences compared to achievement in special classes, but not at or above grade level. It is instructive to note that in a review of mainstreaming literature, Semmel, Gottlieb, and Robinson (1979) reported that the highest mean reading achievement test score reported for students identified as EMR, regardless of age or setting in which they were taught, was 3.8. However, with the advent of the press for excellence, the anticipated benefits for the marginal students were confronted by policies that would not tolerate mediocrity and required excellence (although MCTs require minimal standards they are viewed as consistent with the press for excellence). These students find themselves confronted with standards for graduation that they are ill-prepared to meet. Ironically, most states do have provisions for students enrolled in special education programs whereby they can meet the MCT requirement by either taking tests under modified conditions or by fulfilling the IEP. However, any student not in special education must meet the existing standard by passing the test administered under standardized conditions.

This author is currently engaged in a project studying the MCTs in California as they are used with students who are mildly handicapped or educationally marginal. What is apparent in reviewing achievement data for the marginal students is the extraordinary number of 8th grade students who are achieving in the first through fifth percentile and have never been referred for special education evaluation. How does a student get promoted through all elementary grades and well into junior high school when they are reading at a second grade level? One gets the distinct impression that social promotion is the order of the day for these students, and one must be pessimistic regarding the chances of these students to ever get a high school diploma given the requirement that they must pass the MCT.

The long-term consequences of whether marginal students are currently (in light of press for excellence) better served in regular programs or special education programs needs serious consideration. For example, one development we have found in the MCT project is that the high schools are having to provide remedial classes for students who fail to pass the MCT subtests--that is, a student who fails the reading subtest in 8th grade is enrolled in remedial reading during 9th grade. For the marginal students, MCT failures are most common and they are enrolling in the remedial classes, thereby denying them the opportunity to enroll in electives. Yet, the electives are the very courses which prepare them for employment upon leaving high school. The course sequences taken by these students consists of those courses required for graduation with "open" periods being used to take the remedial classes. Electives are rapidly diminishing in these high schools, due to a lack of demand. The college bound students, who pass the MCTs early, are not opting to take them. The non-college bound students, who would take the courses, do not have the opportunity to take them due to remedial courses required upon failure of the MCT.

It is unclear to us at this time whether the MCTs are implicated in the escalating dropout rate in high school. The Committee on Policy Research of the California Assembly reported the following:

> Students drop out because they are not succeeding in school, they want to work, or they are pregnant...Some dropouts fail district proficiency tests or courses required to graduate. Of the 100,000 dropouts in the class of 1983, 41,000 left in 12th grade due to failure of proficiency tests or the courses needed to graduate. (1985, p. iii)

This same report documents the increase in the number of dropouts during 12th grade. Previously, the sophomore and junior years were those when dropouts most frequently made the decision to leave school early, but once enrolled in 12th grade fewer students decided to drop out. However, it may be that with the advent of MCTs, more marginal students only become aware that they either have not made sufficient academic progress to graduate at the end of the year, or it becomes apparent to them that the chances of them passing the MCT are poor. Then, they drop out because they are not going to graduate as anticipated in the following June. We cannot say with certainty at this time whether the marginal students constitute a disproportionately high number of high school dropouts. However, we will be gaining some insight into this possibility during the course of the project.

It is clear to this writer that far too little is known about the educational plight of these marginal students. MacMillan et al. (in press) cautioned that we must not assume that their educational/personal careers are automatically successful just because they are no longer labeled and segregated. These authors reviewed evidence suggesting that little improvement has occurred in the quality of education received by these students. No matter what they are called or in what setting they are taught, these children represent a group that educators have not been successful in reaching. It appears unfortunate that interest in, and the study of, this group has diminished. By not qualifying for special education, these children appear to lack the advocate support of professional organizations such as the Council for Exceptional Children and the American Association on Mental Deficiency. At present, this support is clearly lacking as the attention of professionals in those groups has shifted to different populations such as students with learning disabilities and children who are more severely handicapped.

SUMMARY

It is apparent from this review that there has been a reduction in the absolute number of children served in EMR programs between 1960 and the present. Moreover, it is apparent that the current EMR group is a more patently disabled group, including some sizeable number of children who would most likely have been enrolled in TMR programs during the 1960s. The changes ought to prompt increased research and evaluation efforts designed to more carefully describe the behavioral characteristics of those children enrolled in these programs. What are they like? What are they capable of learning? Do they present behavior problems in addition to the academic problems? Descriptive information would be welcomed, but thus far very little of it has been forthcoming despite the fact that it is apparent that they are a different subset of children than those studied extensively during the 1960s and 1970s.

Once we understand the population parameters defining this current group, it seems desirable to seriously consider how their years in school can be best spent to achieve the best result upon leaving school as young adults. We should not automatically accept the "back to basics" notions for these children without giving serious consideration to traditional EMR objectives of personal, social, and vocational competence. At this point, it appears that the curricular decisions that must be made on behalf of these children cannot be made in an informed fashion--the necessary evidence is simply lacking.

Finally, we ought not worship IQ cut-offs for deciding either which children belong in, or out of, EMR programs. The recent AAMD recommendation (Grossman,

1983) permits IQs up to 75 in order to clearly communicate to users that IQ is to be used as a guideline and not an absolute value. Nevertheless, an arbitrary (although reasoned) decision was made to drop the IQ cut-off, thereby excluding from eligibility a large group of children formerly served. This writer would hope that those who had previously taught, studied, and advocated for these children would not simply forget them. They need our attention as much, or more, than they have in the past.

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Chapter Two

Curricular Orientations

James R. Patton
Edward A. Polloway

OVERVIEW

Many components of the educational planning process are important but none can have as much impact on what a student learns as the curriculum. Regardless of how well instruction is presented, ultimately concern has to be given to what is taught. Interestingly, it is this very area that teachers feel must be addressed if classroom instruction is to be improved (Halpern & Benz, 1987).

In developing programs for individuals with mental disabilities, the concept of "comprehensive" should become the guiding principle for meeting the diverse needs of students within this population. To accomplish this general goal, curricula should:

1. Respond to the needs of individuals at the present point in time;
2. Balance the need for maximum interaction with nonhandicapped peers with critical curricular needs;
3. Relate to placement (e.g., resource services, self-contained settings, and modified models);
4. Address the transitional needs of students across their schooling and lifespan;
5. Evolve from a realistic appraisal of potential adult outcomes (i.e., a top-down perspective); and
6. Be sensitive to diploma tract goals, especially for students at the secondary level.

These ideas can serve as guidelines for those of us involved in curricular decision-making. However, it is important to note that there are certain variables which affect the way we look at curriculum. One such variable is grade level. What is taught in the early elementary grades differs greatly from what should be addressed in the upper levels of high school. Another variable is severity of the mental disability. For students with severe disabilites whose levels of ability and observed performance are markedly low and for students with problems in the moderate range whose skills are relatively higher but still low, curricula are usually characterized as functional, age-appropriate, and provided in special settings by special personnel. However, for students with mild disabilites, curricula can look very different depending upon where students are placed. Many of these students will receive much of their instruction in regular classes, sometimes with special assistance. For other students for whom regular education is not appropriate but who are capable of handling the content, instruction will occur in special settings. For the most part, their curriculum is academic, often mirroring that of regular education.

There is a current need to reexamine curricular options available for students with mental disabilities. Support for such action has been expressed by teachers (Halpern & Benz, 1987) and is reflected by data suggesting that students are not interested in what they are being taught. This latter point has been made poignantly clear when one examines the dropout rate of students with special needs (Edgar, 1987).

The main purpose of this chapter is to review the major curricular orientations which can be found in special education settings. Also referred to as the program approach or program model, a particular curricular approach dictates the nature of what a student learns. Zigmond and Sansone (1986) state that program orientations differ along two primary dimensions: (a) the amount of time students spend in special settings or with special education personnel, and (b) the extent to which the curriculum differs from that offered in regular education.

For purposes of our discussion in this chapter, three general curricular orientations will be examined (see Figure 1). Although these may be defined or labeled differently by others, essentially they refer to the following: (a) remedial models, to include programs focused on basic academic skill development/remediation and social skills training; (b) maintenance models, to include tutorial approaches, learning strategies, and compensatory techniques; and (c) functional models, to include vocational training and approaches which relate to adult outcomes. Each of these is further discussed below.

Figure 1

CURRICULAR ORIENTATIONS

Remedial Model:

- Basic Skills
- Social Skills

Maintenance Model:

- Tutorial
- Learning Strategies
- Compensatory

Functional Model:

- Vocational
- Adult Outcomes

Remedial Models

Basic Skills

A basic skills orientation is essentially one that underscores the development or remediation of academic skills. If a particular skill area is being presented for the first time, the developmental label is more appropriate; for a skill already taught but causing problems for a student, the remedial connotation is used. These types of programs emphasize instruction in the areas of reading, language arts, and mathematics.

A basic skills orientation is regularly observed in most elementary special education settings and can be characteristic of many secondary level programs as well. This makes sense if we accept the assumption that direct instruction on specific skills will ultimately increase academic achievement levelsand thereby enable students to be reintegrated into regular education or to reach acceptable levels of (a) functional literacy or (b) knowledge/skill attainment required for further education/training.

There are several concerns with a basic skills approach. First, it is deficit-oriented, focusing on student weaknesses and usually neglecting specific strengths and thereby reinforcing their sense of failure. Second, students in these programs often have great difficulty transferring what they have learned to other environments (e.g., regular class settings, postsecondary situations). Systematic attempts to program for generalization are typically absent. Finally, this orientation may be essentially inappropriate for some high school students for whom higher education is not probable and other demands of young adulthood are imminently more important. A significant reason for the continued use of remedial programs with adolescents with learning problems has been the relative lack of other more appropriate curricula for this population. It is not surprising that a number of special educators have therefore questioned the value of continued reliance on this orientation as the primary thrust of secondary-level programs (Alley & Deshler, 1979; Deshler, Schumaker, Lenz, & Ellis, 1984).

In spite of the cautions raised about too heavy a reliance on basic skills programming at the secondary level, teachers are admonished not to abandon this orientation completely. For instance, certain instructional materials which focus on basic skill remediation have been found to be successful with adolescents; one such material is the Corrective Reading Program (CRP) (Engelmann, Becker, Hanner, & Johnson, 1980). This program, based on the principles and methodology of direct instrution, is designed for older students who are experiencing problems in basic reading recognition and comprehension. Some initial research (Campbell, cited in Becker, 1984; Gregory, Hackney, & Gregory, 1982; Polloway, Epstein, Polloway, Patton, & Ball, 1986; Thorne, 1978) suggests that CRP can be effective with older students. The basic rationale for advocating programs like CRP is that students can make gains that can enhance their ability to deal successfully with the demands of adulthood.

Meyen and Lehr (1980) suggest that, given exposure to well-designed and intensive programs with proven track records, significant numbers of adolescents can prosper from academic remediation. However, as Meyen and Lehr point out, intensive instruction must include the following dimensions:

1. Consistency and duration of time on task;

2. Timing, frequency, and nature of feedback based on the student's immediate performance and cumulative progress;

3. Regular and frequent communication by the teacher to the student of his or her expectancy that this student will master the task and demonstrate continuous progress; and,

4. A pattern of pupil-teacher interaction in which the teacher responds to student initiatives and uses consequences appropriate to the responses of the student. (p. 23)

Although there are distinct advantages and disadvantages to using this approach with students who have mental disabilities, a few final comments are warranted. First,even when appropriate, basic skill development/remediation must be well-planned and systematically presented, incorporating the basic principles of effective instruction (see Polloway, Patton, Payne, & Payne, in press; Ysseldyke & Christenson, 1987). Second, for many students, particularly at the secondary level, basic skill remediation must be augmented by instruction in other important areas (e.g., social skills, specific vocational skills, various life skills).

Social Skills

The second type of remedial model is characterized by an emphasis on social skill acquisition and behavior change. This orientation has been classified as remedial to suggest that it also represents a deficit-type view of students. Rarely is this approach used as the major focus of the curriculum, but when this is the case, it is generally within programs for students who demonstrate extreme emotional/behavioral problems.

For the most part, social skills training is related to three themes: skills acquisition, behavior change, and affective development. There is sufficient evidence to show that students who experience learning-related problems in school also display problems in the social/behavioral area as well. The remediation of social skills orientation attempts to develop skills which will be required for successful adjustment in school and society (e.g., making friends, dealing with authority figures). Efforts may also be directed toward reducing behaviors that will not be tolerated in any setting, such as physical aggression or stealing. Lastly, these types of programs may attempt to develop more positive feelings about oneself or one's place in life.

It is generally recognized that all of the areas described above should be included in the curricula of students with mental disabilities. The content and duration of such instructional efforts often depend on the nature of the program provided and the skills and knowledge of the personnel who work in them. However, programs should be based fundamentally on individual student needs.

As with any orientation, there are cautions which must be heeded. In terms of effectiveness, several considerations are worth examining. First, programs which evidence a strong social skill emphasis must be designed for meaningful change (i.e., should be empirically and socially valid). In other words, such endeavors must have value for the students being taught and for others with whom they come in contact.

Second, programs must be accountable in terms of documented change. All too often, special education has been neither special nor education in the sense that there has been little evidence of change in skills or behaviors. For students at the secondary level, very little time remains to prepare them for the very important social and personal demands and responsibilities that accompany adulthood. As a result, programs must be able to deliver results.

The third area of concern has to do with the recurrent issue of generalizing skills acquired in the classroom to other, noninstructional situations. To justify the continued use of any program, it must be demonstrated that it can contribute to a student's success in subsequent environments.

Lately, interest in the problems of generalized ability has promulgated an increasing amount of attention on the use of cognitive techniques (e.g., self-monitoring, self-regulation) for developing social skills and changing behaviors. Such programs, when they can demonstrate internalization on the part of students, offer encouragement for future programmatic efforts within this curricular orientation.

Maintenance Model

Tutorial Orientation

The most salient characteristic of tutorial intervention is helping students deal successfully with content presented outside of the special education setting. Most commonly associated with resource room services at the secondary level, it is directed at maintaining students within the regular education curriculum.

There are several apparent reasons tutorial approaches have been, and continue to be, popular in special education settings. One reason is that students are motivated by this type of service, resulting from the attention they receive and from the success (e.g., better grades) they experience in their regular education classes. Parents react favorably to this orientation because their children can participate in regular education (i.e., diploma programs) with the support that is needed. Regular classroom teachers often like tutorial approaches as they are relieved from having to spend extra time and effort working with students who are having difficulty. As expected, this feature also has political merit since special educators are viewed as helping make the regular educators job less difficult.

Despite the potential benefits of this way of working with students, and given the fact that all special education teachers engage in some form of tutoring, this approach has to be considered a strategy that helps students in the short-term but is of limited value in the long-term. The most glaring limitations of the tutorial approach are presented below:

1. Concern for whether the content (i.e., in regular education) being presented is relevant to the present and future needs of students;

2. The need for special education teachers to provide instruction in subject areas for which they have inadequate preparation -- a situation which is compounded by certification standards which allow elementary-trained special education teachers to teach at the secondary level (Leigh & Patton, 1986); and

3. The fact that, aside from the subject matter concern raised above, much of what is considered to be tutoring (e.g., making sure students understand directions, ensuring that they finish assignments) does not require specialized training and in many cases could be performed by paraprofessionals.

The major implication of this orientation is that it has short-term outcomes. It is this very feature that marks its major advantage as well as its various detractions. For most students with mental disabilities it will not be the most appropriate curricular choice for preparing them for life after school.

Learning Strategies

The learning strategies model is of relatively recent invention and has enjoyed a popular response from the special education community. This is an approach that has distinctive cognitive underpinnings, emphasizing the acquisition of task strategies which can be used across settings, teachers, and subject and skill areas.

Much of the initial work with learning strategies was done at the University of Kansas as part of the research focus of the Institute for Research on Learning Disabilities. Alley and Deshler (1979), two individuals with whom this line of research and program development is most often associated, indicate that the development of learning strategies is most appropriately used in resource settings where the principal goal is to teach skills and then generalize them to the regular classroom, thus underscoring the theme of maintaining students in these settings.

It must be recognized that certain students may benefit the most from this approach. Alley and Deshler (1979) suggest the best candidates are adolescents who possess: (a) reading skills above the third grade level; (b) the ability to deal with symbolic as well as concrete learning tasks; and (c) average or above average intellectual abilities--minimum IQ of 85. Even though these guidelines should serve as valid in most cases, components of this approach can be effectively used with groups beyond this target population. Specifically, selected strategies may be appropriate for younger students as well as for pupils whose achievement and cognitive levels are not congruent with the suggested levels.

A comprehensive discussion of the learning strategies approach is beyond the scope of this chapter. However, to illustrate its place in the total context of curricular choices, a brief overview of how learning strategies are taught is provided. A precise methodology has been developed and includes the following eight steps (Ellis & Sabornie, 1986):

1. Pre-test in relation to the strategy to be taught and obtain a commitment from the student to learn.

2. Describe the particular strategy.

3. Model the strategy.

4. Engage the student in the verbal rehearsal of the steps associated with the particular strategy.

5. Practice applying the strategy in controlled materials (i.e., materials with reading levels that the students can handle easily).

6. Practice applying the strategy in content materials (i.e., materials that are part of the regular curriculum).

7. Obtain a commitment to generalize the strategy.

8. Achieve generalization through three phases:

   - orientation to generalization

- activation: moving from explicit to less explicit instructions and assignment
- strategy maintenance.

This approach to working with special learners offers much promise and excitement, especially for students at the middle/intermediate and high school levels. Yet, there are other facets of this approach which teachers should be aware when considering the possible adoption as the major programmatic thrust. First, like other approaches already discussed, over-reliance on learning strategies could easily result in limited attention to other critical curricular needs of students. Second, there are motivational concerns associated with this approach; for some students, its hard to sell techniques that do not have short-term, immediate payoffs in spite of the long-term benefits. Third, there are relatively few data substantiating the generalizability of these strategies. Students who demonstrate mastery of specific strategies after being taught them in special settings but who cannot apply them in other situations do not reap long-term benefits either.

Compensatory Approach

The main purpose of this approach is to teach students how to live realistically with the specific problems they have in an unsympathetic world. It is considered under the umbrella of maintenance models because there is no attempt to improve the problem area (e.g., making the person a better speller) but rather attention is directed on maintaining individuals in their respective enviroments by developing ways to avoid problematic areas.

There are relatively few school-based curricula that are dominated by an emphasis on this orientation; however, many programs may include aspects of this approach. One might consider compensatory techniques to be one of two types: traditional and creative. The former includes teaching students how to use commonly accepted devices such as calculators and tape recorders. The latter can be characterized by less common techniques such as putting on fake casts in situations where writing in required, buying well-highlighted "used" books, or regularly getting copies of lecture notes from peers who are good notetakers. As can be seen, all of these examples assist the individual in compensating for a particular difficulty.

Compensatory approaches do have long-term value in that they can help students be more successful over a period of time. However, they also are not without drawbacks because they do not always work--there are times when they break down, leaving the individual somewhat helpless. For this reason, total reliance on these types of techniques also runs the risk of being too restrictive.

Functional Model

The two functional models discussed in this section are interrelated in that both address areas relate to the transitional needs of students. Neither approach is new, but their popularity vacillates with the spirit of the times. Along with the increased attention to tranistion, there has been a rekindling of interest in these approaches.

Vocational Training

This model has a long history and typically has been associated with the secondary programs of students with mild/moderate retardation. A classic example of this type of program is the work-study model described by Kolstoe and Frey (1965). More recently, vocational emphases can be observed in programs for students whose problems range from mild to severe. A percentage of federal monies (Vocational Education Act) directed to help support state level vocational education programs is earmarked for special populations. However, the way this money is used to provide vocational training to students with handicaps is subject to significant interstate variation.

It is interesting to note the number of students with special needs who participate in vocational programs. Recently published data indicates that less than four percent of students enrolled in vocational education are composed of students with disabilities (Council of Chief State School Officers, 1986). As Patton and Browder (1988) point out, far too many students with mild disabilities leave high school with few options. Some of these students, particularly those for whom postsecondary education or other formal training is not appropriate, might have earned a diploma but have not gained any marketable vocational skills.

Another area of concern is vocational assessment. The amount of career/vocational information generated on students with special needs is glaringly absent in most cases. Furthermore, even when assessment data have been obtained, this information is not used for instructional purposes: IEP's, lesson plans, and instructional activities (Meehan & Hodell, 1986).

The most notable advantage of vocational training is that it directly addresses one of the major components of transitional planning: employment. There is also a motivational feature for many students whose likelihood of dropping out of school is great unless they sense some relevance and meaningfulness in this schooling process.

Current research efforts in the area of vocational training for students and adults with moderate and severe disabilities have identified two key instructional principles. The first is the need for community-based learning opportunities as an alternative to classroom-based instruction which simulates the real situations. The probability that generalization will occur is greatly increased when realistic training settings are utilized. The second area of interest is the success of training programs which incorporate the concept of supported employment. This technique places individuals into job situations along with a job coach who provides needed assistance. As time goes on, the supportive assistance is gradually faded out.

A curricular orientation which emphasizes vocational training without attention of other adulthood needs is subject to the same criticisms of other approaches which are too narrow in focus. Yet, there is a great need to provide some vocational training to most students with mental disabilities.

Adult Outcomes Approach

This curricular orientation is designed to prepare students with mental disabilities for many different adult scenarios, emphasizing the critical need for life skills preparation. The importance of adequate preparation for adulthood is discernable upon examination of the many demands placed upon young adults. Knowles (1978) suggested that the problems with which young adults must deal fall into six basic categories: vocation and career, home and family living, personal development, enjoyment of leisure, health, and community living. If you think about these areas in the context of traditional curricula, one realizes that most programs do not address many of the specific demands associated with these six categories. For instance, competence in managing one's personal finances, selecting a mate, establishing and maintaining intimate relationships, making use of personal counseling, choosing hobbies, developing a healthy life style, learning how to get help and use community services, or buying automobile insurance is essential for most young adults. Most of us learn these skills incidentally or informally even though we were never taught them. Unfortunately, a vast majority of students with special needs do not acquire skills and knowledge very well in this manner.

Adult outcome approaches reflect a comprehensive "top down" orientation to curricula development. That is, they must address a range of life skills and be sensitive to the realities of the community into which students will be moving. Curricula should be developed only after adult needs are identified. Futhermore, functional curricula should be diploma-generating; there are examples of such efforts (see LaQuey, 1981). A more thorough discussion of this type of curriculum is provided in Chapter 3 of this monograph.

When considering the needs of students who probably will not go on to college or seek other types of formal training and who have experienced years of difficulty in school, there is a real interest in providing curricula which radically shift attention away from the academic problems and place it on the immediate and future needs of students. For this reason, this type of curriculum will often be perceived by students as more meaningful and personally useful.

There are cautions here as well. This orientation must be viewed within the total scope of transitional planning for students with mental disabilities. The life skills taught in this approach must be supplemented by instruction in other areas, namely vocational training and social skill development. Moreover, poorly conceived adult outcome curricula may be of little immediate or long-term value to students. To date, few programs have been developed and not many of these have been validated.

Curricular Decision-Making

The previous discussion has focused on seven distinctive curricular models which can be used with students with mental disabilities. The particular appropriateness of each approach is a function of a number of key variables. Based on the work of Dangel (1981) and Vergason (1983), the following list outlines these key factors that must be considered in the selection and implementation of curricula for learners with special needs.

1. Student Variables

   - cognitive-intellectual level
   - academic achievement
   - grade placement
   - motivation and degree of responsibility
   - social skills

2. Parent Variables

- expectations
- degree of support provided (e.g., financial, academic)
- value orientation
- cultural factors

3. Regular Education/Mainstream Variables

- teacher and nonhandicapped student acceptance of diversity
- administrative support
- availability of variety in curriculum
- accommodative capacity of the classroom
- flexibility
- options for vocational education
- amount of cooperation between regular educators and
- special educators

4. Special Education Variables

- size of caseload
- access to curricular materials
- focus of teacher's training
- support available to special education teachers

Given the theme of this chapter, the discussion of the various models, and the list of variables which should be considered in making curricular decisions, it is obvious that program design is not only important but also a complex process. Therefore, the practice of matching a curricular model with a particular group label, while commonplace, is unwarranted and unacceptable. Programs must be chosen that are appropriate in terms of the present and future needs of students for whom they have been designed.

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Chapter Three

Applying Curriculum For The Instruction of Life Skills

Mary E. Cronin

OVERVIEW

The purpose of both formal and informal education is to produce skilled and knowledgeable adults who successfully contribute to their communities. Various terms are used in the literature which relate to this concept--independent living, survival literacy, life skills, experienced-based learning, survival skills, coping skills, daily living skills, job skills, functional skills, and adult functioning skills. The terms essentially point to one main idea, that is, the ability to use skills and knowledge with the functional competence needed in meeting the requirement of successful adult living. One of the most extensive research programs, the Adult Performance Level Project (APL Project, 1975), states that many skills are needed to survive and function competently in today's world. Many of the skills demonstrated by functionally competent adults seem so easy and natural that they are often taken for granted. Such skills include calling for a doctor's appointment, filling out a job application, asking for directions to a friend's house, calculating discounts on merchandise when shopping, or reading grocery ads in the newspaper. All these skills, and many more, appear elementary yet many students (handicapped or not) leave our school systems unable to perform the simplest everyday task (Schinke & Gilchrist, 1984; Olen, 1984; Daniels & Wiederholt, 1986).

The purpose of this chapter is to discuss the instruction of adult performance outcomes and life skills in classes for students with mental disabilities. Basic considerations in teaching life skills to students with mental disabilities will be discussed first. The Best Practices section will outline a framework from which to develop a program in teaching life skills that can be molded by teachers, students, and administrators to meet the unique needs of the student, school, and community in which it will be taught. Finally, a summary statement will be given.

BASIC CONSIDERATIONS

In developing the theoretical framework from which to outline the best practices in teaching adult life skills to students with mental disabilities, several considerations need to be addressed that are crucial to success in classroom implementation. Disregard for these can impede the full participation of students in real life experiences. These concepts include a) teaching for lifelong learning, b) teaching for relevancy, and c) teaching beyond textbooks and classrooms.

Teaching For Life Long Learning

Dave (1975) states that life long education is a comprehensive concept which includes formal, informal, and nonformal learning extended throughout the life span of an individual to attain the fullest possible development in personal, social, and professional growth. This concept, as Dave sees it, views education as a holistic adventure and includes learning that occurs in the home, school, community, and workplace, or that results from mass media. In essence, life long education is the ability and desire to learn throughout life. It is more than the learning that occurs between the hours of 8 and 3, Monday through Friday, during the months of September through May, up to the age of 18. Life long education relates to that learning which takes place all the time (Smith, 1983) and it is continuous and concurrent (Dave, 1975; Skager & Dave, 1977).

Lifelong education should be flexible and diverse in content, learning tools, techniques and in the time of learning. Most importantly, the ultimate goal of lifelong education is to maintain and improve the quality of life.

Teaching For Relevancy

One of the most potent teaching strategies with any student is teaching for relevancy. A student who can relate academic concepts to his or her own experiences is more apt to understand the concept and be able to apply it. They will then live out the knowledge obtained from the classroom and use it in various situations in the home and community.

Topics and materials for teaching academic concepts which are relevant to students can also be a very powerful motivator. Students who have difficulty with the abstract concepts that some academic course work presents react with curiosity and enthusiasm to nontraditional topics and methods. School and academic assignments take on a different meaning from the student's perspective, moving from "What I have to do for school" to "What I am learning for me." Programs and curricula developed around relevant topics may not have the same effect on every student; relevancy is personally-defined can sometimes be very different for each pupil in a class. Nevertheless, the motivation to attend classes and the need to know what is being taught which are generated by a relevant curriculum point to the importance of rethinking our use of traditional methods and materials with special education populations and focusing more on a functional, life skill orientation.

Teaching Beyond Textbooks and Classrooms

Textbooks and classrooms can be our biggest deterrent to teaching students. Many teachers will not "teach" if they do not have a textbook, teacher's manual, ready-made guides, and lesson plans. One does not need four years of college training and professional preparation to follow a teacher's manual and pass out textbooks, yet many individuals feel that that is the only way they can teach. Unfortunately, many of the tools provided for us as teachers have become our crutch. A common reason cited for not going beyond the textbooks is the lack of time.

Textbook usage is only one approach to cover subject matter. We need to train teachers to go beyond textbooks and the confines of a classroom and encourage their attempts to do so. Teaching beyond the classic textbook classroom setup will not necessarily be any easier, but it might be exciting for both teachers and students (McClure, Cook, & Thompson, 1977). That excitement is ingrained in the impact upon and change that takes place within a student's life. The opportunities that you afford students outside the traditional classroom setting and the knowledge and skills learned beyond the textbook approach will be remembered long after they leave formal schooling.

BEST PRACTICES

Several strategies have contributed to the success of programs utilizing a life skills theme. This section will discuss various strategies associated with successful programs which have been contributed by students, teachers, professionals, and parents. Key elements include successful implementation strategies for life skills programs and an example of a nontraditional curriculum (APL Curriculum Model).

APL Curriculum Model

The Adult Performance Level Curriculum (APL, 1975) is an adult basic education curriculum which was developed by the University of Texas at Austin. The APL model describes literacy in functional terms. The focus of the curriculum is on the competencies and skills necessary for survival in everyday situations. The skills identified by the extensive study that went into the development of this program are considered integral for success: reading, writing, listening/speaking, computation, problem solving, and interpersonal relations. These skills are applied within the framework of the curriculum to the general content areas of (a) Consumer Economics, (b) Health, (c) Occupational Knowledge, (d) Community Resources, and (e) Government and Law (see Figures 1-3). The interrelationship of skills and knowledge areas produced the 42 life skills of the APL Curriculum. These 42 objectives are the core elements in planning instruction (see Figure 4).

The APL Curriculum was developed on the premise that adult competency is a function of both individual capabilities and societal requirements (APL, 1975). However, Wiederholt and Larsen (1983) caution that a person could be knowledgeable about a subject and possess an adequate level of skills but not use this knowledge or these skills effectively..

Soon after the implementation of the APL Curriculum in adult learning centers, professionals questioned waiting to teach individuals these skills until they are in adult education. Why can't this program be used to prepare students for adulthood by incorporating the life skills into the educational system? The APL Adaptation and Modification Project at the Region XIII Service Center in Austin, Texas, under the direction of Ann LaQuey initiated this concept (LaQuey, 1981). It has been used in special education programs in Texas and subsequently adapted and refined by some parishes (counties) in southeastern Louisiana. As the basic program is used, teachers and administrators are encouraged to refine the life skills and personalize the curriculum. The presentation of the APL structure and life skills is meant as a core guide by which individual schools or school districts can individualize the programs to meet their specific needs. Duplicating a program from another state or a neighboring district may not be the best practice for your students but adapting a life skills program to meet the demands of a given community or environment in which they live would be good practice.

As technology advances, so should the curriculum. It should be critiqued, updated, and be viewed as in a constant state of revision as teachers and students work with it every year. For example, students are and will be expected to use many types of automated equipment. Many of them are mini-computers. They are used for banking, drinks and snacks, postal service, gas pumps, microwave ovens, coffee makers, and so forth. As these types of everyday items change, the curriculum needs to change to prepare the students for the actual skills involved (e.g. using different types of key pads to punch in the needed information, knowing the meaning of different abbreviations on the key pads, etc.).

One skill area in the basic APL structure which needs special emphasis when used with adolescents with mental disabilities is interpersonal relations. Many curriculum developers feel that additional attention needs to be given to this life skill area. Additional information on the development of social skills activities can be found in the Cartledge and Milburn (1986), Goldstein, Sprafkin, Gershal, and Klein (1980), McGinnis and Goldstein (1984) and Walter, Todis, Holmes, and Horton (1988).

Figure 1

APL MODEL OF FUNCTIONAL COMPETENCY: EXAMPLES OF TASKS

ELEMENTARY SCHOOL

	CONSUMER ECONOMICS	OCCUPATIONAL KNOWLEDGE	HEALTH	COMMUNITY RESOURCES	GOVERNMENT AND LAW
READING	Look for ads in the newspaper for toys	Read books from library on various occupations	Read the school lunch menu	Find television listing in the TV Guide	Student reads road signs and understands what they mean
WRITING	Write prices of items to be purchased	Write the specific tasks involved in perfoming one of the classroom jobs	Keep a diary of food you eat in each food group each day	Complete an application to play on a little league team	Write a letter to the Mayor inviting him/her to visit your school
SPEAKING, LISTENING, VIEWING	Listen to bank official talk about savings accounts	Call newspaper in town to inquire about delivering papers in your neighborhood	View a film on brushing teeth	Practice the use of 911 emergency number	Discuss park playground improvements with the Mayor
PROBLEM-SOLVING	Decide if you have enough coins to make a purchase from a vending machine	Decide which job in the classroom you do best	Role play what one should do if you have a stomach ache	Role play the times you would use a 911 emergency number	Find the city hall on the map. Decide whether you will walk or drive
INTER-PERSONAL RELATIONS	Ask for help finding items in a grocery store	Ask a student in the class to assist you with a classroom job	Ask the school nurse how to take care of mosquito bites	Call the movie theater and ask the performance times of a movie	Role play asking a policeman for help if lost
COMPUTATION	Compute the cost of a box of cereal using a coupon	Calculate how much you would make on a paper route at $3 per hour for 5 hours per week	Compute the price of one tube of toothpaste if they are on sale-3 for $1	Compute the complete cost of going to the movie (adm., food, transp.)	Compute tax on a candy bar

Figure 2

APL MODEL OF FUNCTIONAL COMPETENCY: EXAMPLES OF TASKS

JUNIOR HIGH SCHOOL

	CONSUMER ECONOMICS	OCCUPATIONAL KNOWLEDGE	HEALTH	COMMUNITY RESOURCES	GOVERNMENT AND LAW
READING	Read an ad for a sale locating name of store, location, phone #, and price of item	Read a job description	Locates poison control numbers in phone book	Use phone book to locate recreational program in community	Locates and reads list of state and U.S. congressman
WRITING	Fill out a magazine order form completely	Practice writing abbreviations for words	Write a menu for a balanced diet	Write a letter to TV station about a program they just cancelled	Fill out voter registration form
SPEAKING, LISTENING, VIEWING	Discuss saving versus spending money	Discuss reasons why we work	Listens to positive and negative feedback on personal appearance	Call library to find out if they have a certain book	Discuss why we need to vote
PROBLEM-SOLVING	Given $10 for the evening, which activity would you choose: movies, bowling, or pizza	Decides on job environment . . . inside, outside, desk, travel, etc.	Role play appropriate behavior for various places (movies, church, restaurant)	Locate the skating rink on a city map and decide the best way to get there	Decide what items have state and/or local tax
INTER-PERSONAL RELATIONS	Asks sales person for help in purchasing jeans	Lists questions they would ask in job interview	Discuss honesty, trust, and promise. Define each	Calls skating rink to inquire about hours	Call to find out what precint you live in
COMPUTATION	Computes the sales tax on a pair of jeans	Compute net income	Calculates and compares the prices of hair washing products	Calculates bus fare to and from the teen center	Calculate the cost of getting a driver's license (fee, gas)

Figure 3

APL MODEL OF FUNCTIONAL COMPETENCY: EXAMPLES OF TASKS

SENIOR HIGH SCHOOL

	CONSUMER ECONOMICS	OCCUPATIONAL KNOWLEDGE	HEALTH	COMMUNITY RESOURCES	GOVERNMENT AND LAW
READING	Read and compare prices of grocery store ads	Reads a job description and qualifications	Read directions on cough syrup bottle	Read a movie schedule	Obtain and read a sales tax sheet for your country/state
WRITING	Write a check for amount of purchase	Complete a job application	Write a grocery list for the week including all the food groups	List government & community employment agencies from phone book	Apply for a work permit
SPEAKING, LISTENING, VIEWING	Explain the difference between charge, check, and cash purchases	Role play calling your boss when ill	Practice calling a doctor's office for an appointment	Listen to a state patrolman talk about highway driving	Describe an accident
PROBLEM-SOLVING	Decide what amount you can afford to rent an apartment	Decide what to wear to a job interview	Decide whether you should go to community clinic or hospital for an injury	Role play what you would do if your car broke down	Decide which candidate to vote for
INTER-PERSONAL RELATIONS	Ask sales person if they have a layaway and the costs involved	Role play a mock interview	Ask a pharmicist about a prescription	Ask directions to a video store	Call legal aid and ask what services are available
COMPUTATION	Calculate and compare savings on items from different stores	Calculate paycheck deductions	Decide how many times a day to take a pill	Compute cost of doing laundry in a laundromat vs. home	Calculate the cost of a speeding ticket

Figure 4

Adult Performance Level
42 Life Skills

I. Consumer Economics
  1. Counting and Converting
  2. Consumer Fraud
  3. Money Management
  4. Income Tax
  5. Care/Upkeep of Personal Possessions
  6. Comparison Shopping
  7. Catalog Ordering
  8. Advertising Techniques
  9. Ordering Food
  10. Housing/Utilities
  11. Car Buying/Maintenance
  12. Insurance
  13. Using Credit
  14. World Resource
  15. Banking Services
  16. Measuring and Metrics

II. Community Resources
  17. Public Assistance Program
  18. Recreation
  19. Information and Aid
  20. Mass Media/Public Opinion
  21. Driving
  22. Transportation

III. Health
  23. Safety Measures/Emergencies and First Aid
  24. Preventive Care and Health Maintenance
  25. Drug Control/Drug Abuse
  26. The Adolescent
  27. Self
  28. Marriage and the Family
  29. Parenting and Family Planning
  30. Pregnancy and Childbirth
  31. Child Rearing
  32. Nutrition/Food Preparation

IV. Occupational Knowledge
  33. Job Selection and Satisfaction
  34. Sources of Employment
  35. Job Appliations and Interviews
  36. Employment Agencies
  37. Effective Job Behavior
  38. Financial and Legal Aspects of Employment

V. Government and Law
  39. Government Structure and Function
  40. Citizen Rights and Duties
  41. Criminal and Civil Law
  42. Legal Documents

One skill area in the basic APL structure which needs special emphasis when used with adolescents with mental disabilities is interpersonal relations. Many curriculum developers feel that additional attention needs to be given to this life skill area. Additional information on the development of social skills activities can be found in the Cartledge and Milburn (1986), Goldstein, Sprafkin, Gershal, and Klein (1980), McGinnis and Goldstein (1984) and Walter, Todis, Holmes, and Horton (1988).

Implementation of a Life Skills Program

The crucial step in the success of any program is putting it into practice. The implementation of a life skills program involves the cooperation of interested and committed school personnel (administration and teachers), students, and various community members.

School Personnel

The development and implementation of a life skills program requires teachers and administrators to be flexible and open to new and different ideas. Life skills programs have been set up in both self-contained and resource classrooms using various scheduling formats. They have also been used in connection with vocational training programs at the secondary level. In larger schools where there are multiple special education classes, the life skills curriculum has been departmentalized according to the various content areas (e.g. Consumer Economics, Health, etc.) Each school needs to decide how the program will operate within their unique situation to meet the needs of the students.

The teacher's role in many cases will change to that of a consultant or manager of learning. Content and information may not always come out of the traditional classroom textbook but instead may be found in a telephone book, on food and product cartons, during field trips, listening to guest speakers, or reading a state driving manual (Bunney, Cronin, Hale & McEntire, 1980). This involves resourcefulness, creativity, and, especially during the initial stages, time and effort. If developed properly, this type of program requires a substantial amount of planning and start-up time.

Materials needed for programs such as these can include old and new items. Teachers who are setting up life skills classrooms become savers and collectors. Items to be thrown away around their houses become valuable teaching tools: cartons, labels, newspapers, coupons, magazines, "junk mail", old cash register tapes--anything that has the potential of teaching or demonstrating a skill used in everyday living. It is crucial to collect items from neighborhood businesses and government offices that you patronize such as old menus from restaurants, sample applications from jobs the students might have applied for, sample teaching packets from banks and savings and loans, brochures from gas stations and car dealerships (e.g., guidelines for car maintenance or tips on buying a car), pamphlets from utility companies on ways to use energy wisely, sample government applications and forms (social security, general license, IRS, draft registration, etc.) and drivers manuals from the state. As you might expect, the list of collectibles can be lengthy, but it should always be community-specific (i.e., relate to the student's environment).

A life skills classroom can be set up in several ways. One popular option is to obtain enough containers (e.g., library magazine boxes, dress/shirt boxes) for each life skill in the curriculum. This allows you to store all the items you have been collecting and saving in an organized manner. Labeling the containers and grouping them according to life skill content areas (e.g., Consumer Economics, Health, etc.) affords both the teacher and the students easy access to the materials as they need them.

Commercial materials are being developed in all of the life skill areas. More published materials are being written on lower reading levels which are helpful to many students. It is difficult and expensive to build a life skills program with commercial materials only. Many times, as with any commercial program, the materials will address some but not all the needs of the students. A balance of teacher collected, teacher-made, and commercial materials needs to be established for each situation. A list of companies that publish life skills materials is located in the appendix to this chapter.

Students

The student is critical to the successful implementation of a life skills program. In many cases school takes on new meaning for the student. The student becomes actively involved in the learning process. Responsibility and learning to make choices become major themes throughout the curriculum. Students are encouraged to choose life skills they want to learn rather than being assigned or told what areas to study. If teachers or administrators are uneasy about this concept they might want to start slowly by limiting student choices to two or three in each area until the students can handle more. Successful programs have found that when students are involved in the decision making process, motivation to learn is high. Students become aware that proposed activities are worth doing and, most importantly, they realize the significance of learning the material. The students also realize that the curriculum and materials are responding to their needs as a learner rather than offering standardized coursework that all students must follow.

Community Involvement

Community involvement in a life skills program can involve two significant groups of people - the school community and the neighborhood community. Each group can participate through providing field trip sites, guest speakers, and resource people. In general, communities welcome student involvement as there are benefits for both students and community. Initially, it is advised to start within the school community with younger or lower functioning students and "graduate" to the neighborhood community as their skills and interests mature.

Many businesses and individuals within communities have contributed to efforts to teach life skills by responding to needs assessment questionnaires. This type of evaluation process pinpoints

1. The specific skills needed for survival in that community.
2. The entry level skills associated with jobs that are available to students for either training or future employment after leaving the system.

In concluding this section a few points need to be stressed. Although this model has been in place in only a few parishes (school districts) in southeastern

Louisiana for the last 3 - 4 years, many observations can be shared regarding the development and implementation of a life skills curriculum. The following reflections need to be seriously considered before contemplating a life skills program. First, the program has been highly motivating for the students due to use of relevant topics and materials that have meaning to their daily lives. Next, the students realize that the curriculum is meeting their needs to survive in their community. Third, the curriculum is a flexible and versatile approach to individualizing. Finally, the curriculum does require, initially, teacher time and creativity; therefore, it requires teacher commitment. Even though some teachers may not relish the thought of more time, the results in student enthusiasm and progress is the reinforcement that, as teachers, we ultimately seek.

SUMMARY

The purpose of this chapter has been to discuss teaching life skills to students with mental disabilities. The first step in setting up such programs includes becoming aware of concepts of lifelong learning and of how this contributes to the goal of teaching students with mental disabilities to maintain and improve the quality of their lives. Furthermore, school personnel must be more cognizant of the value of teaching relevant information to students using nontraditional materials and methods.

The APL curriculum model offers a basic structure by which individual schools and districts can develop life skills programs which are relevant to their communities. The APL curriculum was developed on the premise that adult competency is a function of both individual capabilities and societal requirements (APL, 1975). Functional competence in life skills, as developed by APL, is seen as two dimensional and is described as a set of skills (reading, writing, listening/speaking, computation, problem solving, and interpersonal relations) applied to a set of general knowledge areas (consumer economics, health, occupational knowledge, community resources, and government and law). Wiederholt and Larsen (1983) emphasize that knowledge and skills acquisition must be extended beyond classroom experiences and applied in various real world situations.

School personnel, students, and community play a significant part in the successful implementation of a life skills program. The school needs to be flexible and open to new and different ideas. Teachers need to be managers of learning, coordinating many different learning experiences in the classroom. In addition, they need to move away from heavily relying on textbooks to using a variety of environmental materials for hands on learning. Students need to be given the opportunity to be actively engaged in their learning and be involved in some of the decisions regarding their programs. The students' communities, both school and neighborhood, need to be tapped as valuable resources for obtaining materials and people, thus enhancing the development of life skills.

A life skills approach to teaching mentally disabled populations holds much promise. If we are to fulfill our mission of preparing students for multiple subseqent environments after they exit school, then programs of this nature need to be given serious consideration.

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Appendix

A SAMPLING OF LIFE SKILLS INSTRUCTIONAL MATERIALS

Cambridge Book Company. Improving Math Competence. Educational Design Inc., New York

Computer Age Education, Inc., 5225 Wisconsin Ave, N.W., Washington, D. C. 20015

Computer Island, 227 Hampton Green, Staten Island, NY 10312

DLM Teaching Resources, One DLM Park, Allen, Texas 75002

Edmark Associates, Becoming Independent Series. Bellevue, WA

Fearon Education, 19 Davis Dr., Belmont, CA 94002

Follett Publishing Co., Chicago, IL

Harcourt, Brace, Jovanovich, New York

Holt, Rinehart & Winston, New York

Ideal School Supply Co., Oak Lawn, IL 60453

Janus Book Publishers, Hayward, CA

LKP Consumer Survival Series, 1315 W. Balmont Ave., Chicago, IL 60657

Mafex Associates Consumer Education Series, Box 519, Johnstown, PA 15907

Modern Curriculum Press, 13900 Prospect Rd., Cleveland, OH 44136

New Readers Press, Be Informed Series, Syracuse, New York

Pitman Learning, Inc., 6 Davis Drive, Belmont, CA 94002

Quercus Corporation, 2768 Pineridge Rd., Castro Valley, CA 94546

Frank E. Richards Pub. Co., Box 66, Phoenix, NY 13135

Scholastic Book Services Functional Literacy Program, 50 W. 44th St., New York, NY 10036

Steck-Vaughn Co., 807 Brazos, Austin, TX 78701

Teachers Support Software, Inc., P.O. Box 7125, Gainesville, FL 32605

Trend Enterprises, Inc., P.O. Box 64073, St. Paul, MN 55164

Chapter Four

Incorporating Adaptive Behavior Deficits Into Instructional Programs

Daniel J. Reschly

OVERVIEW

Adaptive behavior has been fundamental to conceptions of mental retardation (mental disabilities) for many decades. The role of adaptive behavior in classification and placement decisions has become increasingly prominent over the past twenty years due to a variety of influences (Reschly, 1982, 1987a, b). Adaptive behavior has not been as prominent in decisions about programming and interventions. Although a number of issues could be cited for the lesser influence on programming (e.g., confusion over conception, inadequate assessment instruments, and uncertain relationships between assessment procedures and programming objectives), adaptive behavior is seen here as essential in programming decisions. In this chapter, issues related to conception, assessment, decision-making, and instructional programming in the adaptive behavior domain will be discussed. The purpose of this discussion will be to provide essential information on the use of adaptive behavior in programming, particularly the possible links between comprehensive evaluations conducted by support services personnel and instructional programming in resource teaching programs or self-contained special classes.

BASIC CONSIDERATIONS

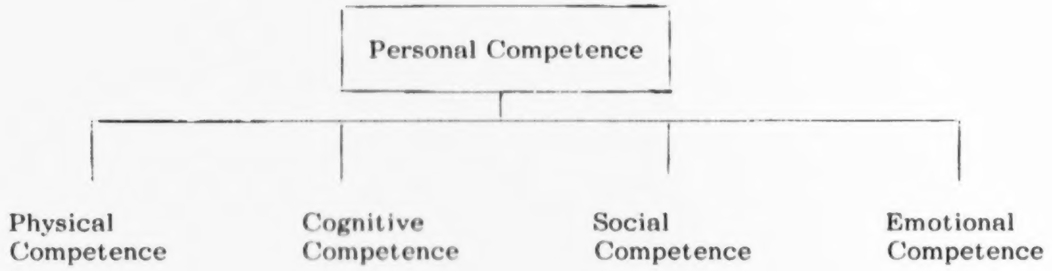
Adaptive behavior is, "...the effectiveness or degree with which the individual meets the standards of personal independence and social responsibility..." (Grossman, 1983, p. 1). This definition of adaptive behavior, formulated by the American Association on Mental Deficiency (AAMD), is the most widely accepted definition of adaptive behavior. The key concepts in this definition, personal independence and social responsibility, are quite obviously open to a variety of interpretations. These different interpretations provide the basis for differences in points of view concerning conception and assessment of adaptive behavior. The differences in point of view have a direct influence on how adaptive behavior is conceptualized, assessed, and incorporated in programming decisions.

Issues in Adaptive Behavior Conception

There are a number of similarities and differences in the conception of adaptive behavior which have a profound influence on how adaptive behavior might be measured and on decision-making with adaptive behavior. One of the most important issues concerning adaptive behavior is the relationship to other constructs such as cognitive competence and emotional competence. In Figure 1, a model of human competence based to a large extent on Greenspan (1979) was developed to clarify the relationship between these constructs (Gresham & Reschly, 1987; Reschly & Gresham, 1987). The key notion here is that at the margins of social competence there is some overlap with cognitive competencies and with emotional competencies. Thus, it is impossible to totally separate adaptive behavior from other key constructs. Gresham and Reschly (1987) also suggested two major components of social competence, adaptive behavior and social skills. The overlap of adaptive behavior and social skills was supported further by a review published by Gresham & Elliott (1987) in which the social skills content of two widely used adaptive behavior measures was carefully assessed. These authors concluded that social skills constituted from 25% to 40% of the content on two adaptive behavior measures. Thus, there is considerable overlap between social skills and adaptive behavior, such that the more general construct is probably social competence.

Figure 1

A Model of Human Competence



The debate over whether a specific domain is included within the particular construct may seem to be esoteric. However, the degree to which social skills are included with adaptive behavior has significant implications for how adaptive behavior might be assessed, the decisions that might be made in classification and placement, in programming, and in the curricular materials that might be available for instructional purposes.

At the other margin, social competence overlaps with some cognitive competencies. The similarities and differences between cognitive competencies and adaptive behavior will be discussed in a later section.

Nearly all conceptions of adaptive behavior use the basic definition formulated by AAMD. This definition also specifies consideration of age and cultural context. The major criteria to judge adaptive behavior at different ages are presented in Table 1. It is important to note that the criteria for prior ages are incorporated into the criteria for later ages.

A final similarity in conceptions of adaptive behavior is the nearly universal use of certain domains. The domains which nearly always appear on adaptive behavior measures are learning to function independently, ranging from skills such as feeding and dressing oneself and toileting to higher level skills such as being able to travel independently in the community, skills in shopping and handling money, and so on. Other domains which are commonly included in adaptive behavior measures are socialization or peer relationships and vocational or occupational competencies.

There are also a number of differences in adaptive behavior conception. Perhaps the most important difference is in the purpose for which the conception was established as quite different purposes have been established. For example, Henry Leland commented that the underlying purpose in the development of the clinical version of the Adaptive Behavior Scale (ABS) was to assess the "reversible aspects" of mental retardation (Leland, 1978). Furthermore, the developers of that scale were principally interested in persons who were then residing in institutional settings, most of whom were severely disabled. Thus, the underlying purpose for the ABS was to improve programming for persons with severe retardation. In contrast, the underlying purpose of the development of the Adaptive Behavior Inventory for Children (ABIC)

(Mercer, 1979) was to reduce the proportion of minority students classified as mildly disabled. Here classification and placement was the primary purpose and the population of interest was mildly, rather than severely disabled. The principal basis for judging the usefulness of the ABS should be the degree to which it is related to programming, particularly with individuals more severely disabled. In contrast, the degree to which the ABIC is useful should be judged on the degree to which it improves classification and placement decisions through the provision of useful normative information. Different purposes lead to quite different kinds of assessment devices. A frequent mistake in all areas of assessment is to use an instrument designed for one purpose to attempt to develop answers related to another purpose.

Table 1

Key Excerpts about Adaptive Behavior from the
AAMD Classification System

"Adaptive Behavior is defined as the effectiveness or degree with which individuals meet the standards of personal independence and social responsibility expected for age and cultural group."

"Expectations of adaptive behavior vary for different age groups; DEFICITS IN ADAPTIVE BEHAVIOR will vary at different ages. These may be reflected in the following areas:

During INFANCY AND EARLY CHILDHOOD in:

1. Sensorimotor Skills Development
2. Communication Skills (including speech and language)
3. Self Help Skills
4. Socialization (development of ability to interact with others)

During CHILDHOOD AND EARLY ADOLESCENCES in areas 1-4 and/or:

5. Application of Basic Academic Skills in Daily Life Activities
6. Application of Appropriate Reasoning and Judgment in Mastery of the Environment
7. Social Skills (participation in group activities and interpersonal relationships

During LATE ADOLESCENCE AND ADULT LIFE in areas 1-7 and/or:

8. Vocational and Social Responsibilities and Performance" (Grossman, 1983, p. 25).

One of the most important differences in conception of adaptive behavior is the degree to which cognitive competencies are included. Some conceptions and measurement instruments place primary reliance on, while others virtually ignore, cognitive competencies. An example dealing with use of money might illustrate these differences. Nearly all adaptive behavior scales include content on understanding basic economic transactions and shopping skills. One way to assess the handling of money skill would be to ask a third party respondent, such as a parent or teacher, about whether the student can handle money and whether he or she purchases items at a store. If the respondent indicates that the individual does engage in those behaviors, then the skill might be viewed as having been mastered at least at some level by the student. This particular approach places relatively little emphasis on underlying cognitive competencies. In contrast, we might provide a situation where the student was given a requisite number of coins plus some additional coins and ask him or her to make change. In the latter instance, we would be assessing the skill more directly and some underlying cognitive competencies, at least simple addition and subtraction, would be involved. The degree to which cognitive competencies are included is far from a trivial matter. If underlying cognitive competencies are included, then many more students would be classified as mentally disabled than will be the case if such competencies are excluded (Reschly, 1981).

Another of the important differences among conceptions of adaptive behavior is the relative emphasis on different settings. This is especially important for school age children where different conceptions and measures place markedly different emphases on in-school vs. out-of-school settings. Some instruments and conceptions place almost exclusive reliance on in-school adaptive behavior while others place equally strong and extreme emphases on out-of-school adaptive behavior. Although a full discussion of the argument concerning in-school vs. out-of-school adaptive behavior is perhaps beyond the scope of this chapter, a brief rationale and descriptions of the two settings is provided in Table 2, further elaboration is provided later in a subsection on adaptive behavior domains, and still further discussion is available in Reschly (1982, 1987a, b).

As noted earlier, there are some common domains that nearly always appear on adaptive behavior scales. There are also a number of domains which are included on some scales and excluded on others. One of these domains is motor skills. Two of the recently developed adaptive behavior scales (Bruininks, Woodcock, Weatherman, & Hill, 1984; Sparrow, Balla, Cicchetti, & 1984) have included a motor skills domain for persons under a certain age but a third did not (Adams, 1984a, 1984b). Another difference in adaptive behavior scales is whether or not maladaptive behaviors and items related to emotional disorders are included. Two of the recently developed scales included a maladaptive behaviors section while a third did not. The importance of both of these domains is probably related to degree to which the scale is used for classification and placement versus program planning and intervention purposes. On scales used primarily for classification and placement, the inclusion of motor skills and maladaptive behaviors is perhaps inappropriate. Given the meaning of the construct of mild mental retardation, it seems quite inappropriate to classify a student as mildly disabled when their only deficit in adaptive behavior has to do with an emotional or behavioral disorder. Students with primary handicaps of an emotional or behavioral disorders nature should be classified, if appropriate, as behavior disordered, not mentally disabled. However, to the degree that the scale is used for program planning or interventions, the information from the maladaptive behaviors domain or emotional disorders area is often extremely important. Frequently, it is behaviors in these realms which prevent persons who are mentally disabled from adjusting successfully to community settings. These additional adaptive behavior domains might therefore be seen as essential considerations in program planning and interventions, but largely irrelevant to whether or not the individual should be diagnosed as mentally retarded.

Table 2

Conception of Adaptive Behavior for School Age Children

ADAPTIVE BEHAVIOR: SCHOOL BASED

Rationale:

1. Mastery of literacy skills is a key developmental task for persons between the ages of 5 and 18.
2. The expectation for and emphasis on educational competencies is common to most if not all major sociocultural groups.

Assessment:

1. Collection and consideration of a broad variety of information including teacher interview, review of cumulative records, examination of samples of classroom work, classroom observation, group standardized achievement tests, individual achievement tests, diagnostic achievement tests, and other informal achievement measures, classroom coping skills, interpersonal skills, and maladaptive behaviors.

ADAPTIVE BEHAVIOR: OUTSIDE OF SCHOOL

Rationale:

1. Mastery of a variety of non-academic competencies also is expected, and a key developmental task between ages of 5 and 18.
2. The expectations for and opportunities to develop non-academic competencies may vary among different contexts.

Assessment:

1. Collection of information on social role performance outside of school in areas such as: peer relations, family relationships, degree of independence, responsibilities assumed, economic and vocational activites, etc.
2. Method of collecting data may include structured measures such as interviews with parents or students, or informal measures.

Issues in Assessment of Adaptive Behavior

A number of issues in the assessment of adaptive behavior have a profound influence on the decisions that might be reached in classification and placement or program planning and intervention. The first of these differences has to do with the underlying purpose for which the assessment procedure was developed. There are two principal purposes for which adaptive behavior information is used. The first of these, classification and placement, involves determination of whether or not the individual is eligible for classification as handicapped, and then, whether a special education program is required in order for the student to receive an appropriate education. These decisions are sequential, eligibility first, then determination of whether or not a special education program is needed. Classification and placement decisions generally require reliable and valid information on the degree to which the individual is different from age or grade level expectations. Norm referenced instruments are typically the most appropriate kinds of measures for this kind of decision. There are a number of critical considerations in the selection of a norm referenced instrument (Reschly, 1987a, b). Briefly, the criteria which should govern selection of a norm referenced instrument are: a) appropriate item content with a sufficiently large sample that adequately represents important domains of behavior, b) norms which represent the important characteristics of the populations of interest, c) derived scores which can be used as part of the method to operationalize classification criteria, d) reliability information showing that the measurement procedure is consistent and stable, and e) validity evidence indicating the critical relationships of performance on the instrument to other criteria of interest.

The second purpose for which adaptive behavior information is collected is decision-making about program planning and intervention. These decisions entail deciding exactly what needs to be taught. Reliable and valid information is needed concerning skills the student has mastered and skills that are needed in order for the person to function capably in a variety of environments. Criterion referenced information should generally be used in establishing the specific objectives for educational programming and in evaluating the degree to which the individual has profited from instruction. The critical criteria that should govern the selection of criterion referenced instruments are a) appropriate item content with thorough coverage of all of the important skills in a domain of behavior, b) objective scoring that yields reliable results, c) a well established hierarchy and sequence of skills which can be used to interpret performance, and d) an explicit relationship between performance on specific items or collections of items and instruction or interventions. Instruments which yield this kind of information provide a tremendous asset for us when we are attempting to make programming decisions. A critical point here is the necessity of thorough coverage of all of skills; in contrast, the content requirement for a norm referenced instrument was a representative sample of skills. Moreover, these skills need to be related to some kind of hierarchy and sequence so that performance can be interpreted in terms of skills mastered and skills not yet mastered. Finally, an explicit relationship to instruction and interventions provides an enormous boost to the usefulness of the information. As we shall see in a later section, only a few instruments meet the rather exacting criteria for the kind of information we need for program planning and interventions.

Another issue in the assessment of adaptive behavior is the method used to collect the information. The currently available adaptive behavior instruments reflect at least three methods, the most common of which is interview with a third party. For example, the third party respondent for school age children and youth might be either a parent or a teacher. The interview may be highly structured in which exact wording of questions and responses is specified or the interview may be loosely structured requiring a considerable amount of skill on the part of the interviewer. A second method of collecting adaptive behavior information is to directly assess the skills exhibited by the student. This direct assessment might be done according to standardized procedures using methods quite similar to those used in individual measures of achievement and ability. A third method of collecting adaptive behavior information might be to observe the student in daily life activities and then to rate the individual's skills on those behaviors observed. Each of the methods of collecting information has strengths and weaknesses which need to be recognized in interpreting results of an instrument (Reschly, 1987a, b). Perhaps a more important consideration, related to method, is choice of source of information. There are four plausible sources of information on adaptive behavior, the student, peers of the student, parents, and teachers. The most commonly used sources are interviews with parents and checklists completed by teachers. Depending on the kind of adaptive behavior information, each of these sources might be more appropriate than others. For example, information on social skills and peer relationships might best be gathered through some kind of method which draws information from peers.

A final issue in the assessment of adaptive behavior is the setting in which the information is gathered. The major alternatives for school age children, in-school and out-of-school, were also discussed as an issue in conception of adaptive behavior. The easy way out of this dilemma might be to simply say, both settings are important and assessment information from both settings will be obtained. This does not resolve the dilemma because information across the two settings is often inconsistent. The inconsistencies in the information then leads to the dilemma over which setting is seen as most important, which should take precedence, particularly in classification and placement decisions (Reschly, 1981, 1987a, b). That dilemma has no absolute solution applicable to all cases, multidisciplinary teams must consider the relative benefits and risks of special education classification and placement as well as the degree to which the deficit in one of the settings impairs performance in key domains, now and in the future. A further use of the adaptive behavior information from the two settings is suggested in Figure 2 where placement in the part time resource option is recommended for students having significant adaptive behavior deficits in school, but relatively normal performance in the out-of-school setting.

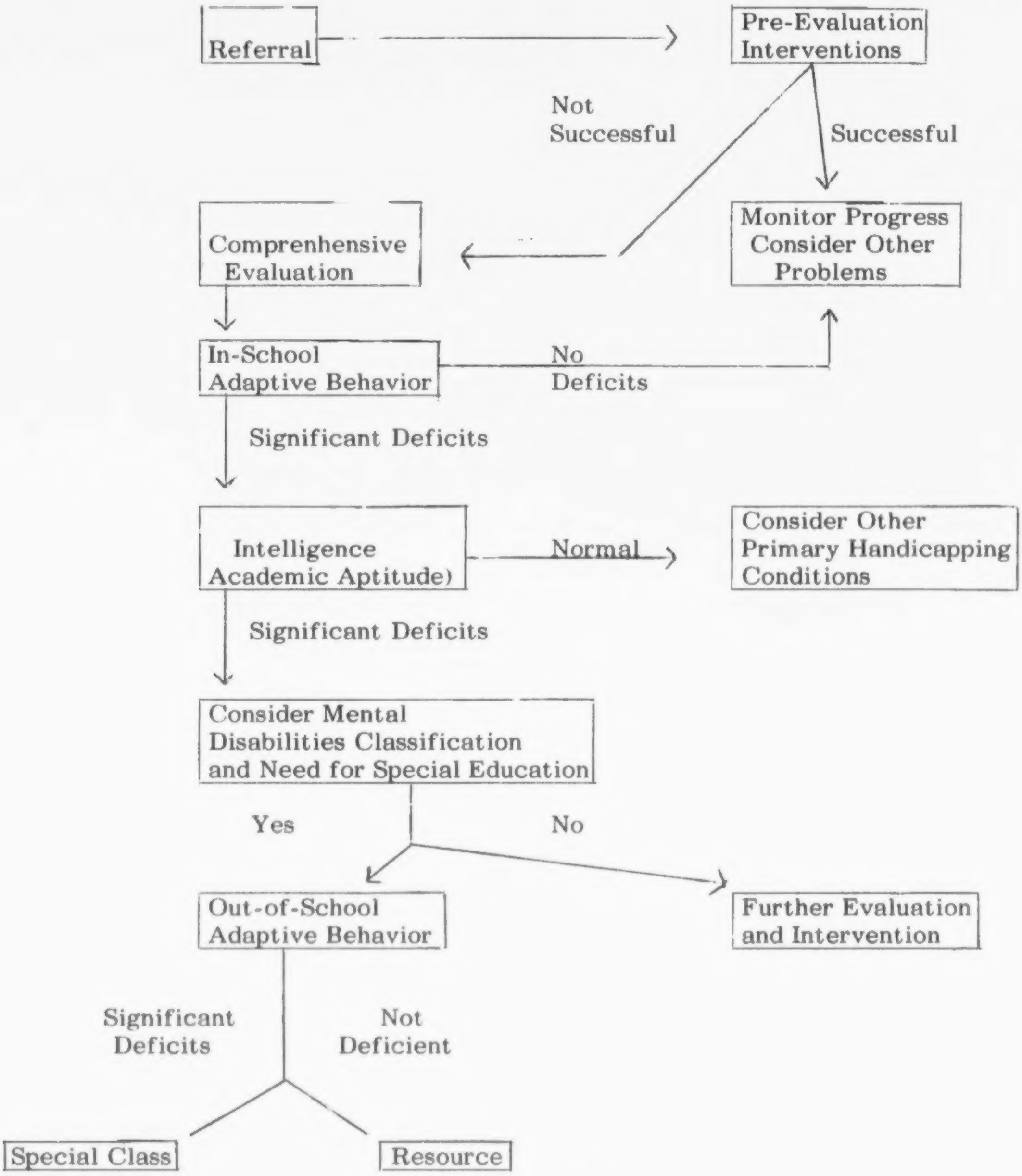
Adaptive Behavior Domains

The exact number and names for adaptive behavior domains are arbitrary. Due to the variation in measures (and conceptions) it is impossible to adopt a specific scheme of domains and subdomains from a specific instrument or previously developed conception of adaptive behavior. The most authoritative source in this area, the American Association of Mental Deficiency (AAMD), does not establish domains or subdomains of adaptive behavior (Grossman, 1983).

Based on careful review of available instruments and considerable discussion, four domains of adaptive behavior were established in work completed recently in Minnesota and Florida (Reschly, 1987a, b) The four broad areas were thought to represent the most important domains of adaptive behavior for the purposes of educational decision-making, particularly for the purposes of classification and placement decisions. They incorporate nearly all of the domains and subdomains which appear on adaptive behavior instruments. Typically, an adaptive behavior instrument will include two or more subscales which can be related to each of the domains.

Figure 2

A Scheme for Use of Adaptive Behavior Information in Mental Disabilities Classification and in Selection of Special Education Program Options


Referral
Pre-Evaluation Interventions
Not Successful
Successful
Comprenhensive Evaluation
Monitor Progress Consider Other Problems
In-School Adaptive Behavior
No Deficits
Significant Deficits
Intelligence Academic Aptitude)
Normal
Consider Other Primary Handicapping Conditions
Significant Deficits
Consider Mental Disabilities Classification and Need for Special Education
Yes
No
Out-of-School Adaptive Behavior
Further Evaluation and Intervention
Significant Deficits
Not Deficient
Special Class
Resource

Depending on purpose of assessment, a greater or lesser number of domains and greater or lesser breadth is desirable. For classification and placement purposes, relatively few domains that are quite broad would be the preferred situation. Fewer domains that are quite broad are more likely to be related to significant areas of development that occur over a span of several years. Classification and placement decisions, although reviewed annually, are usually long term, significant influences on the lives of children and youth. The decision to classify a student as mentally disabled must be based on capabilities in broad areas which develop over several years and have significance for adult adjustment. This helps ensure that children and youth are not classified as mentally disabled due to narrow, highly age specific difficulties with specific tasks.

Quite different needs exist for adaptive behavior domains and subdomains for the program planning and intervention purpose. Here, much greater specificity is desirable. A greater number of domains, subdomains, and specific skills within subdomains facilitates the identification of specific skills and the subsequent organization and implementation of instruction. Some adaptive behavior instruments do provide an approximation to the degree of specificity in subdomains and specific skills required to design instruction. Most do not.

The four domains discussed below were chosen based on the following considerations:

1. The careful study of conceptions of adaptive behavior including recent versions of the AAMD classification scheme.
2. Recently published chapters on adaptive behavior and related topics.
3. The results of empirical studies.
4. Standardized instruments measuring adaptive behavior, particularly the instruments developed and published in the last decade.
5. Long-term developmental significance.
6. The purpose of classification and placement in a school setting.
7. The potential relevance of the adaptive behavior domain to educational programming.

An extensive list of references for each of these points was provided in Reschly (1986, 1987). These four broad domains are (a) Independent Functioning, (b) Social Functioning, (c) Functional Academic Competencies, and (d) Vocational Occupational Competencies.

Independent Functioning

Competencies dealing with functioning independently are perhaps the most widely accepted component of adaptive behavior. Every scale has one or more sets of items dealing with independent functioning. Independent functioning virtually always includes items on skills related to toileting, feeding oneself, dressing oneself, avoiding danger, and maintenance of a minimal level of safety and health. A variety of other kinds of skills may also be included within this general domain. Skills sometimes represented are mobility about the environment, being able to travel unaided, consumer skills, knowledge of sources of information, appropriate action in different emergencies, use of communication devices such as the telephone, acceptable use of leisure time, and degree of need for supervision. One way to think of the competencies in this domain is to consider all of the essential coping behaviors an adult must master in various environments in order to function adequately.

All current adaptive scales include numerous items and, usually, several subdomains which might be organized within this domain. Use of information from these diverse item pools and subtests is necessary in order to make a judgment about possible deficits in independent functioning.

Social Functioning

Nearly all adaptive behavior scales include items on interpersonal relationships. Getting along with others at some minimal level is a basic, fundamental component of adaptive behavior. Social functioning includes all of those behaviors involving the individual with other people. There is a vast array of such behaviors that vary by age, cultural factors, setting, and role. Some of the key competencies in this domain include appropriate attention to other persons, acceptable orienting and posturing responses, acceptable efforts to communicate, sharing appropriately, expressing feelings in an acceptable fashion, forming friendships, recognition of the needs and feelings of others, avoidance of obnoxious behaviors, and situational appropriateness of behaviors.

The degree to which specific social skills are included in the items on adaptive behavior measures varies considerably. Some instruments have a considerable number of quite specific social skills items while others have only a few general items. Another variation in scales has to do with the degree to which maladaptive behaviors are included. Some scales have an extensive series of items which reflect behavior disorders more than specific adaptive behavior skills. These behavior disorder characteristics certainly influence whether or not a person is acceptable to others, but might be seen as reflecting the general area of emotional rather than social competence (recall a previous discussion). The question is where social competence or adaptive behavior ends and where emotional competence, including maladaptive behaviors, begins. That is somewhat of an academic debate, put presence or absence of these behavior disorder characteristics will certainly influence the degree to which the individual is acceptable to others. Therefore, these items on behavior disorders should be included in consideration of program planning and interventions, but they should not be the sole basis for determining the existence of an adaptive behavior deficit in the domain of social functioning. More will be said later about the relationship of maladaptive behaviors to the determination of adaptive behavior deficits.

In the social functioning area it is useful to consider all the ways one can be perceived by others as unacceptable and unsuccessful due to problems in interpersonal relations or through the negative reactions of other people. Behaviors which cause others to be offended or to reject the individual are, by definition, socially unacceptable. As with all adaptive behavior domains, the influences of sex role, situational expectations, and cultural context must be considered in judgments of social functioning.

Functional Academic Competencies

Adaptive behavior conceptions and instruments vary on the degree to which functional academic competencies are included. Some adaptive behavior scales include a great deal of content in this area while at least one scale includes virtually none. The inclusion and relative emphasis on this domain is probably one of the most controversial issues in mental retardation classification. Functional academic competencies has been included for a variety of reasons. Chief among these reasons was the central mission of the school in developing at least minimal academic competencies that are absolutely essential for competent performance in various roles during the child, adolescent, and adult years. Furthermore, the AAMD criteria for adaptive behavior during the school age years, as well as the criteria for the adult years, include the application and use of academic skills in daily life activities. This practical everyday application feature is an essential component of our notion of functional academic competencies.

The major concern with functional academic competencies has to do with the basic, fundamental literacy skills and knowledge of concepts of time and number. Functional academic skills do not include more esoteric intellectual or cognitive competencies that, although certainly desirable, are not essential to competent functioning in other adaptive behavior domains and in everyday settings. Functional academics refers to very basic reading and writing skills and practical, everyday demands for knowledge of numerical and temporal relationships. Considerable delay in the acquisition of these skills is sufficient to constitute a deficit in adaptive behavior, but the delay in this domain must be substantial in relation to other students of the same age and the same sociocultural group. Furthermore, several sources of information should substantiate consistently the existence of a deficit in functional academic competencies. A single deficient standardized test score in some domain of achievement is not sufficient. The measures reflecting the deficits must be consistent across different indices of achievement, recognized with several sources of information, and must be shown to influence or be highly likely to influence practical, everyday functioning.

The essential character of skills in this domain needs to be emphasized repeatedly. We do not mean academic skills that are merely "desirable" but wish to focus on those skills, the absence of which, would cause others to regard the individual as lacking competence. Moreover, another key characteristic of functional academic competencies is the relationship to competent functioning in other adaptive behavior domains. The question to consider is, "Does absence of this academic skill lead the person to be regarded as lacking competence in independent functioning, social functioning, or vocational/occupational development?" If the absence of the academic competence does lead to perception of lack of competence in other adaptive behavior domains, then the skill can be legitimately regarded as fundamental or basic, and therefore, representative of this domain. An exercise for judging whether or not a specific academic skills is functional is provided as an appendix to this chapter.

Vocational/Occupational Competencies

The competencies associated with the vocational/occupational domain are not expected to develop until at least the early school years, but become increasingly important at progressively higher age and grade levels. For high school students and young adults classified as mildly or moderately mentally handicapped, the vocational/occupational domain assumes paramount importance. This typically does not mean that other domains are ignored since minimal competence in the other three domains is typically a prerequisite to good vocational/occupational performance. Poor performance in one of the other domains may preclude competent performance of at least some, and perhaps many, vocational/occupational skills. The vocational/occupational domain includes at least three subdomains:

1. Knowledge about careers and work.
2. Appropriate attitudes and values concerning careers and work.
3. Specific skills associated with a job or career.

The vocational/occupational domain is primarily important for program planning and intervention. It should not be used, typically, as the basis for a deficit in adaptive behavior in an initial mentally disabled classification and placement decision. Typically, such classification and placement decisions are made relatively early in the student's school career, usually by about age eight or nine and almost always prior to age fourteen. At these younger ages, the vocational/occupational domain is not a sufficiently important area of functioning to constitute the basis for determining a deficit in adaptive behavior which could then be used to justify classification and placement as mentally handicapped. Later, of course, vocational/occupational competencies are crucial in relation to late adolescent and early adult adjustment.

Recently Published Adaptive Behavior Instruments

Three reasonably well standardized adaptive behavior instruments were published in 1984. These instruments generally satisfy the important criteria for technical adequacy and yield useful information for both classification/placement and program planning/intervention decision-making. Each of these instruments is reviewed briefly here, with more extensive information provided in Reschly (1987a, b).

The Comprehensive Test of Adaptive Behavior (CTAB) (Adams, 1984a) and the Normative Adaptive Behavior Checklist (Adams, 1984b) are designed to provide criterion and norm referenced information, respectively. The CTAB is a particularly good criterion referenced instrument that might be used as the primary basis for determining general goals in individual educational plans. The major subdomains on this scale are self-help skills, home living skills, independent living skills, social skills, sensory and motor skills, and language and academic skills. The CTAB has approximately 500 items. In my judgment, the CTAB has excellent content validity, adequate norms, very high reliability, and, potentially, good criterion related validity. The CTAB might be used either in classification and placement or, more likely and more appropriately, in program planning and intervention decisions.

The Vineland Adaptive Behavior Scales, also published in 1984 (Sparrow et al.) are organized into three administration formats, a Survey Form involving an interview requiring about 45 minutes, a Classroom Edition which is administered as a teacher checklist, and an Expanded Form also administered as an interview. The Survey and Expanded Forms are well-integrated with the former representing a sample of items from the latter. The Survey Form is a sound norm referenced instrument and the expanded form appears to be a quite useful criterion referenced instrument which could be used to a considerable degree in program planning and intervention. The Classroom Edition is a checklist which can be filled out independently by the teacher in about 20 minutes.

Each of the Vineland Adaptive Behavior Scales formats has somewhat unique strengths and weaknesses. A major weakness of the interview instruments is that the interview is only loosely structured. Conducting the Vineland interviews requires considerable practice and skill. Due to problems with loosely structured interviews, the interjudge agreement, a form of reliability, is somewhat lower than would be desirable. Otherwise the Vineland survey instruments appear to be quite sound, particularly on the criterion of adequate norms. The Vineland Classroom Edition has excellent reliability, outstanding norms, and one of the best sections on the development and limitations of various derived scores (Harris, 1984). However, a significant portion of the items on the Classroom Edition, perhaps 20 or 25%, require the teacher to make judgments about adaptive behaviors outside of the school setting. For the most part, teachers would rarely, if ever, have any direct contact with the student in those other settings. However, the teacher is encouraged to "estimate" whether or not the student can perform a particular skill. The Classroom Edition is limited because of the questionable item content.

Overall, the Vineland Scales are potentially quite useful, particularly the Expanded Version, for program planning and intervention decisions and the Survey instrument for classification and placement decisions. Users of the Vineland Scales must keep in mind the tremendous importance of good interviewing skills.

The third instrument published in 1984 was the Scales of Independent Behavior (SIB) (Bruininks et al., 1984). The SIB is administered as a highly structured interview using the easel format that is now familiar to nearly everyone involved with psychoeducational assessment. The SIB has outstanding content validity, good norms, and excellent reliability and validity. This instrument in its present form is, however, largely restricted to norm referenced assessment and classification and placement decision-making. The senior author of this instrument has indicated that a very detailed checklist is being developed which will attempt to translate information from the SIB into a more criterion referenced format that will be useful in program planning and intervention. Persons seeking information on adaptive behavior for programming and intervention would be well advised to seriously consider this checklist when it becomes available.

Published Instruments and Adaptive Behavior Domains

Measures for the four major adaptive behavior domains are presented in Tables 3, 4, 5, and 6. There are several measures for each of the domains, but most of the measures provide content from more than one domain. These measures provide a reasonable starting point for assessment of each of the domains. When significant weaknesses are identified, further assessment for the purpose of determining specific skills should be completed.

Table 3

Scores from Standardized Instruments
in the Independent Functioning (IF) Domain

INDEPENDENT FUNCTIONING (IF)

Instrument	Subtest	Single or Mixed Domain Content	Derived Score Quality
CTAB	Self Help Skills	Single	Adequate
CTAB	Home Living Skills	Single	Adequate
CTAB	Independent Living Skills	Mixed (FA, VO)	Adequate
NABC	Self Help Skills	Single	Poor
NABC	Home Living Skills	Single	Poor
NABC	Independent Living Skills	Mixed (FA, VO)	Poor
SIB	Personal Living Skills	Single	Adequate
SIB	Community Living Skills	Mixed (FA, VO)	Adequate
VABS-C	Daily Living Skills	Mixed (FA)	Adequate
VABS-E	Daily Living Skills	Mixed (FA)	Adequate
VABS-S	Daily Living Skills	Mixed (FA)	Adequate

Key: CTAB=Comprehensive Test of Adaptive Behavior; NABC=Normative Adaptive Behavir Checklist; SIB=Scales of Independent Behavior; VABS=Vineland Adaptive Behavior Scales; C=Classroom; E=Experimental; S=Survey; IF=Independent Functioning; FA=Functional Academics; SF=Social Functioning; VO=Vocational and Occupational

Table 4

Scores from Standardized Instruments
in the Social Functioning (SF) Domain

SOCIAL FUNCTIONING (SF)

Instrument	Subtest	Single or Mixed Domain Content	Derived Score Quality
CTAB	Social Skills	Single	Adequate
NABC	Social Skills	Single	Poor
SIB	Social Interaction and Communication	Mixed (FA)	Adequate
VABS-C	Socialization	Single	Adequate
VABS-E	Socialization	Single	Adequate
VABS-S	Socialization	Single	Adequate

Key: CTAB=Comprehensive Test of Adaptive Behavior; NABC=Normative Adaptive Behavir Checklist; SIB=Scales of Independent Behavior; VABS=Vineland Adaptive Behavior Scales; C=Classroom; E=Experimental; S=Survey; IF=Independent Functioning; FA=Functional Academics; SF=Social Functioning; VO=Vocational and Occupational

Table 5

Scores from Standardized Instruments in the Functional Academics (FA) Domain

FUNCTIONAL ACADEMICS (FA)

Instrument	Subtest	Single or Mixed Domain Content	Derived Score Quality
CTAB	Independent Living	Mixed (IF, VO)	Adequate
CTAB	Language and Academics	Single	Adequate
NABC	Independent Living	Mixed (IF, VO)	Poor
NABC	Language and Academic	Single	Poor
SIB	Social Interaction and Communication	Mixed (SF)	Adequate
SIB	Community Living	Mixed (IF, VO)	Adequate
VABS-C	Communication	Single	Adequate
VABS-C	Daily Living	Mixed (IF)	Adequate
VABS-E	Communication	Single	Adequate
VABS-E	Daily Living	Mixed (IF)	Adequate
VABS-S	Communication	Single	Adequate
VABS-S	Daily Living	Mixed (IF)	Adequate

Key: CTAB=Comprehensive Test of Adaptive Behavior; NABC=Normative Adaptive Behavir Checklist; SIB=Scales of Independent Behavior; VABS=Vineland Adaptive Behavior Scales; C=Classroom; E=Experimental; S=Survey; IF=Independent Functioning; FA=Functional Academics; SF=Social Functioning; VO=Vocational and Occupational

Table 6

Scores from Standardized Instruments in the Vocational and Occupational (VO) Domain

VOCATIONAL AND OCCUPATIONAL (VO)

Instrument	Subtest	Single or Mixed Domain Content	Derived Score Quality
CTAB	Independent Living	Mixed (IF, FA)	Adequate
NABC	Independent Living	Mixed (IF, FA)	Poor
SIB	Community Living	Mixed (IF, FA)	Adequate

Key: CTAB=Comprehensive Test of Adaptive Behavior; NABC=Normative Adaptive Behavior Checklist; SIB=Scales of Independent Behavior; IF=Independent Functioning; FA=Functional Academics; VO=Vocational and Occupational

Informal Measures

There are a number of informal measures which can be used in decisions about program planning and intervention. These informal instruments typically do not have norms, but they often provide information on specific skills which can be related to specific instructional routines or interventions. A variety of interview and role play methods for teaching social skills were described in Cartledge and Milburn (1986) and in a number of other sources discussed briefly in this section. The skill streaming documents (Goldstein, Sprafkin, Gershaw, & Klein, 1980; McGinnis & Goldstein, 1984) are designed to provide information on social skills interventions which might be carried out in educational settings. Another informal measure with clearly established implications for programming is the Walker Social Skills Curriculum (Walker, McConnell, Holmes, Todis, Walker & Golden, 1983). Although these instruments would not satisfy most criteria for "technical adequacy," they are useful for certain kinds of decisions related to planning programs and evaluating instruction. Most of the criteria for technical adequacy are largely irrelevant to more informal instruments that are used to design and evaluate instruction. Another useful instrument is the Social Behavior Assessment (Stephens, 1981), a structured rating scale that can be completed by teachers or parents. Considerable research has been conducted with the SBA at Iowa State by Gresham and his colleagues. The items are keyed to a companion volume that provides information on interventions that can be carried out with each of the social skills (Stephens, 1978). It should be noted here that the social competence information provided on the SBA is heavily oriented toward classroom functioning, especially what would often be regarded as classroom survival skills (e.g., staying on task and making requests in an appropriate fashion). This instrument provides relatively little information on "functional academics" or independent functioning outside of school setting.

Decision-Making with Adaptive Behavior: Classification and Placement

The two primary national organizations involved with mental retardation, the American Association on Mental Deficiency (AAMD) and the Council for Exceptional Children - Mental Retardation Division (CEC-MR) attach considerable importance to adaptive behavior in classification and placement and program planning and intervention decisions. Both have published official policy statements concerning classification and placement decisions (Grossman, 1983; Polloway, 1985; Zucker & Polloway, 1987). In these statements, adaptive behavior is seen as critical to decision-making, but no policy statement endorses the direct application of single scores from specific instruments nor the use of precise cutoff scores (e.g., more than one standard deviation below the mean, or a standard score of approximately 75). Both suggest the application of judgment to interpretation of a wide variety of information on adaptive behavior. All clearly contemplate, and in my view, endorse, the use of standardized instruments as part of the information considered in making judgments about adaptive behavior.

Adaptive behavior should be one of the areas screened in the initial comprehensive evaluation for all students with mild disabilities, and it should be, along with general intellectual functioning, a central consideration in mental disabilities diagnoses. The assessment of adaptive behavior should involve a broad variety of information including different methods, different sources, and different settings, including in-school and out-of-school. Information from these diverse methods, sources, and settings is often available to staffing teams but careful consideration of this information in placement recommendations, and programming goals is often obscure. Better classification decisions and sounder programming recommendations will be made if a variety of adaptive behavior information is considered and if that information plays a crucial role in these very important decisions. Further discussion of considerations related to degree and consistency of discrepancies, use of score scales, combining adaptive behavior and IQ data, and decisions about program options are provided in Reschly (1987a, b).

One of the most critical decisions which adaptive behavior should influence is choice of program option. This decision has not received sufficient attention in the past. In Figures 2 and 3, a tentative scheme for application of adaptive behavior information to choice of program options is provided. The scheme depicted in this table indicates that students would be placed in resource programs if their adaptive behavior deficits are restricted to functional academics and the school setting. Students would not be placed in largely segregated programs, for example, self-contained classes with integration (SCIN) and self-contained special classes with little integration, unless they had comprehensive adaptive behavior deficits. This principle should guide decision-making concerning program option, particularly with younger students.

The critical difference between the resource and the special class options involves the curricular goals established in each. Resource programs usually involve tutoring in basic skills and subjects or teaching compensatory mechanisms within regular education curriculum content and goals. In contrast, the special class options typically involve different curricular content and goals. Therein lies the crucial difference: whether or not a different curriculum is pursued. Typically, the special class involves greater emphasis on functional academic skills and acquisition of social competencies.

Students with relatively normal adaptive behavior in out-of-school settings are, almost by definition, performing adequately in functional academics and social competencies, the major emphases in special class programs. These students are likely to have adaptive behavior deficits largely restricted to academic skills in the school setting. If other classification criteria were met, they should be regarded as handicapped and in need of special education, but a special education that stresses academic skills, not social competencies per se. And the resource program meets that need better than the special class options, particularly for younger students.

The necessity of establishing different curricular goals for students with mild retardation usually becomes more apparent with increasing age and grade. For most junior and senior high students, alternative curricular goals will become increasingly necessary due to the increasing gap between their skill levels and grade or age averages. Here difficult decisions must be made about the entirely worthy, but competing goals of:

1. Basic skills acquisition.

2. Content and subject knowledge.

3. Social competencies.

4. Occupational and vocational competencies.

Figure 3

Relationship of Student's Profile to Program Option

Regular
Education
and Resource   Special Class
/____/

Young / -------------------------/AGE/-------------------------/Older

Moderate/ /DISCREPANCY/ Large
Close to /------------------ / CUTOFFS /------------------/ Far Below

Single Domain /-----------/ COMPREHENSIVENESS /------------/ Most Domains
One Setting and Settings

Desehler, Shumaker, Lenz, and Ellis (1984) discussed these difficult choices in regard in students with learning disabilities. The choices are even more difficult in mild retardation programming due to the relatively lower basic skills levels.

The rather large jump from regular classroom to special class carries vast implications for the kind of curriculum the student receives and the opportunities to be placed back in regular education full time. Generally students placed in special classes, including the Iowa option of self-contained with integration (SCIN) typically have few, if any, opportunities to be placed back into regular education on a full-time basis. This occurs in large part because of the different curricular implications involved with special education programming (see Figure 4). The same curricular goals are typically pursued in regular education and in resource programs, but different curricular goals are typically pursued in special classes. The point is that the more restricted setting should be used only if other settings such as resource placement are proven to be insufficient. The initial placement of young students classified as mentally disabled should, unless there is compeling evidence to the contrary, be in the part-time resource rather than special class. If resource is clearly insufficient, there is time, particularly for younger students, to be placed in the self-contained classes.

Adaptive behavior should exert an important influence on whether or not a student is classified as mentally disabled and the kind of program option selected for students classified as mentally disabled. No student should be classified as mentally disabled unless an adaptive behavior deficit is established. Moreover, the adaptive behavior pattern for the student,particularly in-school vs. out-of-school as well as the comprehensiveness of the adaptive behavior deficit (or deficits), should determine the choice of program option. Adaptive behavior should also influence program planning and interventions, a topic discussed in the next section.

Figure 4

Program Options for Students Who Are
Mildly Mentally Handicapped

LEAST RESTRICTIVE

Administrative Option	Curriculuar Implications
REGULAR CLASS	Regular Curriculum
REGULAR CLASS WITH MODIFICATION	Regular Curriculum
RESOURCE TEACHING PROGRAM	Regular Curriculum with Modifications
SPECIAL CLASS	Special Curriculum

MOST RESTRICTIVE

Decision-Making with Adaptive Behavior Program Planning and Intervention

Students are not properly classified as mentally disabled unless deficits in one or more domains of adaptive behavior are clearly established during the initial comprehensive evaluation or in the reevaluation. If the deficit in adaptive behavior is of sufficient magnitude to justify classifying a student as mentally disabled, then that deficit must also be sufficiently important to require at least one general goal and several specific instructional objectives. The general goal and the specific objectives should be specified in the IEP. The four major adaptive behavior domains suggested in this chapter, social functioning, independent functioning, functional academics, and vocational and occupational are crucial domains of behavior for all persons. Perhaps this reasoning will clarify the importance of adaptive behavior in program planning and intervention. If the deficit was significant enough to justify the classification of mentally disabled, then the deficit is surely important enough to be included as part of the general goals and specific objectives for the individualized educational program.

The general adaptive behavior goals for the IEP can be developed from the pattern of strengths and weaknesses on norm referenced adaptive behavior instruments. Typically, the norm referenced information is not sufficiently precise to develop specific instructional objectives. In most instances, a criterion referenced instrument or an expanded or comprehensive edition of the adaptive behavior inventory must be used to develop sufficiently precise information to develop objectives. Three of the adaptive behavior inventories discussed earlier do provide information with sufficient specificity to make decisions for program planning and intervention. These inventories, the Comprehensive Test of Adaptive Behavior, the Vineland Adaptive Behavior Scales - Expanded Edition, and the Social Behavior Assessment are appropriate for the purpose of developing specific objectives.

Perhaps the most efficient and effective way to use the longer or expanded versions of norm referenced adaptive behavior inventories is to use the expanded portion for the domain where a signficant deficit has been established. The norm referenced domain standard scores and percentile ranks indicate the student's level of performance in relation to other persons of the same age. For example, if the Vineland Adaptive Behavior Scale - Survey Edition scores to be relatively normal for independent functioning, and functional academics, but very low for social functioning, the social functioning portion of the Vineland Expanded Form might then be used.

Recent work in the area of social competence interventions has established a number of principles which should be applied, where appropriate, in designing programs for students with mental disabilities. A useful conceptualization of social skills interventions was provided in Gresham and Reschly (1987) (drawing primarily on Gresham's work with social skills interventions). In this formulation, interventions for social competence deficits were conceptualized as a four-stage process:

1. Skill acquisition

2. Skill performance

3. Eliminating interfering behavior

4. Promoting generalization

Gresham has described several specific intervention principles that are particuarly useful with each of these stages of intervention. For example, skill acquisition is promoted through the use of techniques like modeling and coaching (Cartlege & Milburn, 1983; Gresham, 1985).

Several procedures to enhance skill performance, such as behavioral rehearsal, application of reinforcement based principles, and enhancing appropriate cues and prompts related to performance in the skill, are also recommended by Gresham and others. In some instances, the third stage of this process is important, eliminating behaviors which interfere with either skill acquisition or skill performance. Nearly all educators are familiar with situations in which students are receiving more reinforcement for disruptive behavior than for appropriate, task-related behavior. Interventions to remove these interfering behaviors need to apply techniques designed to reduce or eliminate inappropriate behavior such as response cost, differential reinforcement of other behavior, group interdependent contingencies, and so on.

Generalization is the fourth stage of the intervention process. Generalization refers to the degree to which a behavior is maintained in a specific setting or transferred, as appropriate, to other settings or roles. Generalization refers to the performance of a behvior under subsequent, nontraining conditions. Stokes and Baer (1977) provided an excellent description of the different principles which might be used in promoting generalization.

Other recent formulations have stressed slightly different components of the intervention process. The ecological inventory approach developed by Brown and his colleagues (Brown, Branston-McClean, Baumgart, Vincent, Falvey & Schroeder, 1979) has been used widely with persons with severe handicaps. This approach involves a five-phase process:

1. Current level of functioning in major settings and associated activities is determined.
2. Current and future settings and activities where the individual might be functioning are identified.
3. The subsettings within each of thee major settings are identified.
4. An inventory of each subsetting is carried out to determine the activities that are necessary for successful functioning and these activities are further task analyzed into precise segments of behavior.
5. The handicapped person's performance on each of these behaviors is assessed.

This approach might be used with some students who are mildly mentally disabled, particularly those that are functioning at an especially low level or persons whose skills are quite different from developmental patterns. The ecological inventory approach attempts to teach skills in natural settings as a means to enhance transfer or generalization. Further information on this approach is available in Brown et al. (1979).

Another approach primarily concerned with generalization across settings, designed more for students with mild handicaps, was termed "transenvironmental programming" (Anderson-Inman, 1981). This model was stressed by Horn and Fuchs (1987), in a discussion of transfer of skills from resource programs to regular education classrooms.

Transenvironmental programming also occurs in phases:

1. The specific skills and behaviors required for success in regular education are carefully identified. A useful approach ot identification of those skills might be to start with something like the task-related behaviors from the Social Behavior Assessment (Stephens, 1981).
2. The essential skills are taught in the resource room setting.
3. These skills are then transferred to the regular education setting through use of specific learning principles to promote generalization across settings.

4. The acquisition and performance of these skills in the regular education environment is then assessed to determine the degree to which further programming might be necessary.

The crucial role of adaptive behavior in mainstreaming efforts was emphasized by Horn and Fuchs. However, the same principles emphasized in the mainstreaming analysis are also relevant to acquisition and application of social competence skills in other settings.

Cone (1987) provided a particuarly insightful discussion of the possible relationships between norm referenced and criterion referenced adaptive behavior measures. Cone suggested that the norm referenced adaptive behavior measures might be useful for classification and placement decision-making and for determining general goals for instruction. However, he strongly emphasizes the necessity of developing criterion referenced information as a means to carry out interventions. Cone advocated use of a set of criterion referenced scales he has developed (the Pyramid Scales) (Cone, 1984).

BEST PRACTICES

In this section, ten principles reflecting recommendations for best practices in the use of adaptive behavior with students classified as mentally disabled will be provided. The first eight principles were discussed extensively in the chapter. The ninth and tenth principles, pertaining to annual reviews and triennial reevaluations, are logical extensions of the first eight principles.

Principle 1: Adaptive Behavior Must be an Essential Part of Decision-Making with Students Classified as Mentally Disabled.

Comment: Adaptive behavior should be screened for all students referred due to learning or behavior problems and further diagnosis undertaken when screening reveals problems or when the classification of mental disability is considered. Resolution of adaptive behavior deficits may prevent classification of students as mildly handicapped or may substantially improve the success of mainstreaming efforts. For those reasons, adaptive behavior should be screened for all students. For students classified as mentally disabled, adaptive behavior is an essential and mandatory component of the basic diagnosis.

Principle 2: In Classification and Placement Decisions with Students in the Area of Mental Disabilities, Deficits in one or More Key Domains of Adaptive Behavior Must be Established.

Comment: Deficits in adaptive behavior are required by federal regulations, state special education rules, and key professional associations' classification recommendations. Students with no adaptive behavior deficits must not be classified as mentally disabled regardless of how low their IQ scores might be.

Principle 3: Multiple Sources, Settings, and Methods for Collection of Adaptive Behavior Information Should be Considered.

Comment: Determination of a deficit in adaptive behavior should never be based on a single test score from the domains or subdomains items on a standardized inventory. The use of standardized results from standardized inventories should be confirmed through further observation, interview, or review of other records.

Principle 4: Formal, Standardized Adaptive Behavior Inventories Should Always be Part of the Basis for Determination of Adaptive Behavior Deficits.

Comment: The technical adequacy of recently published adaptive behavior inventories is generally sound. These inventories help improve the assessment process by providing relatively objective information gathered under fairly standard conditions.

Principle 5: The Adaptive Behavior Deficit Must be Specified with Appropriate Documentation Cited Whenever Students are Classified as Mentally Disabled.

Comment: The specification and documentation will help ensure that adaptive behavior is considered properly and that adequate information is available to justify the classification decision as well as to provide guidance to programming efforts.

Principle 6: Adaptive Behavior Should Exert a Major Influence on Choice of Placement Options.

Comment: Adaptive behavior information should be the basis for deciding between resource teaching programs and special classes. Generally, younger students, particularly those with adaptive behavior deficits in only one setting, and with performance near classification cutoff points, should always be placed in resource teaching programs as their initial placement in special education. As these students become older, depending on the success of the resource program, changes may be needed either toward full-time placement in regular education or full-time in a special class. However, the initial placement should be resource.

Principle 7: One or More Adaptive Behavior Goals Should be Stated in the General Goals on the Individualized Educational Plan for Students Classified as Mentally Disabled

Comment: Adaptive behavior reflects those skills essential to personal independence and social responsibility. These are crucial goals for all children and youth in our society. They must be especially prominent in educational programming for students who are disabled. If the adaptive behavior deficit is sufficient to justify classification as mentally disabled, then the deficit is certainly of sufficient magnitude and importance to require special programming.

Principle 8: Specific Objectives and Instructional Routines Related to Acquisition of those Objectives must be Established for Each of the Adaptive Behavior Goals.

Comment: A variety of procedures are available for establishing specific objectives and interventions for adaptive behavior deficits. These objectives and associated interventions need to be included in the special education programming for most students who are mildly handicapped, and all who are mentally disabled.

Principle 9: Adaptive Behvior Should be Considered in the Annual Review for all Students Classified as Mentally Disabled.

Comment: Adaptive behavior is a crucial part of the programming and therefore it should be considered explicitly in the annual review. Progress toward acquisition of social competencies should be assessed carefully with appropriate changes made in the goals, instructional goals, or instructional routines.

Principle 10: Adaptive Behavior Should be Considered Systematically in the Reevaluation of Students Classified as Handicapped. For students classified as Mentally Disabled, Explicit Deficits in Adaptive Behavior Must be Documented in Order to Justify Continued Classification as Mentally Disabled.

Comment: Adaptive behavior, like general intellectual functioning, needs to be considered in reevaluations. This consideration may involve review of existing records, acquisitin of skills in systematic programming efforts, or administration of standardized inventories. The critical decisions to be made are whether the special education programming has improved adaptive behavior functioning. Finally, this information should be used in revisions of the general goals, instructional objectives, and instructional routines.

SUMMARY

Adaptive behavior is crucial to decision-making with students classified as mentally disabled. Adaptive behavior should be prominent in decisions at all levels with students classified as mentally disabled, including the initial comprehensive evaluations, choice of placement option, determination of general IEP goals, determination of instructional objectives, selection of instructional routines, annual evaluation of progress, and in reevaluation. Recently developed instruments have improved resources available for assessment of adaptive behavior. The standardized inventories along with the informal measures provide useful information in determination of general strengths and weaknesses and, to somewhat lesser degree, specification of instructional objectives and instructional routines. The information that justifies classification of a student as mentally disabled should also be used in determination of placement option and in specification of general goals. Use of adaptive behavior in the decision-making process with mentally disabled students will enhance the likelihood of special education programming that does, indeed, improve the individual's likelihood of being personally independent and socially responsible as an adult.

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Chapter Five

Career/Vocational Assessment

Patricia L. Sitlington

OVERVIEW

The concept of career education has been defined by the Council for Exceptional Children (1978) as follows:

> the totality of experiences through which one learns to live a meaningful, satisfying work life. Career education provides the opportunity for children to learn, in the least restrictive environment possible, the academic daily living, personal-social, and occupational knowledges, and specific vocational skills necessary for attaining their highest levels of economic, personal, and social fulfillment. The individual can obtain this fulfillment through work (both paid and unpaid) and in a variety of other social roles and personal lifestyles including ... pursuits as a student, citizen, volunteer family member, and participant in meaningful leisure time activities. (p. 1)

Career education is more than just preparation for work. It encompasses preparation for all aspects of community living, including home, school, occupation, and community, and prepares the individual for roles not only as a worker, but also a consumer, citizen, and family member (Brolin, 1982; Clark, 1979). Most authors would advocate that career education be infused into the ongoing program of each individual rather than operated solely as a separate program and that it begin in the elementary years and continue through adulthood.

Some of the roles of assessment in the career education process are similar to the roles of assessment in any instructional process. First, career assessment should provide the information needed to (a) determine the most optimum program placement for the student, (b) identify the support needed for the student to benefit from this program, (c) monitor the student's progress throughout the program, and (d) determine the best placement at the end of the program. In the elementary grades, such placements might involve combinations of special education programs and ongoing regular education programs. At the secondary level, placements might also include regular vocational education programs.

A second major role of career assessment is to provide a basis for helping the individual with mental disabilities determine the most effective match between the world of work and his or her interests, abilities, and work environment preferences. This role is most often referred to as vocational assessment or vocational evaluation and involves using the work environment and work-related activities as much as possible in gathering the needed information on the student.

The term "career assessment" is usually used to define a developmental process beginning at the elementary level and continuing through adulthood. Career assessment is a broad term that includes terms such as "vocational assessment" and "vocational evaluation," much as career education encompasses vocational education. Just as with assessment in all other areas of special education, career assessment is crucial to the design of an individualized career education program to meet the needs and identified goals of the learner with mental disabilities.

The purpose of this chapter is to provide an overview of the career/vocational assessment process and provide recommendations related to how this process might be most effectively implemented with individuals with mental disabilities. The first major component of this chapter discusses (a) types of information to be gathered in the assessment process, (b) basic techniques available for gathering this information, and (c) models of career/vocational assessment that are currently in place. The second segment of this chapter will present recommendations related to (a) the definition, purpose, and goals of career/vocational assessment, (b) the assessment process itself and basic assessment methods, and (c) the role of various personnel in career/vocational assessment.

BASIC CONSIDERATIONS

The history of career assessment mirrors in many aspects the history of career education and the interdisciplinary foundation for this concept. There are a number of other disciplines involved in career assessment for the handicapped, especially vocational education and vocational rehabilitation. The field of vocational education is primarily concerned with the preparation of all individuals for paid or unpaid employment requiring less than a baccalaureate-level degree. Vocational education programs are operated at both the secondary and postsecondary levels and may be part of the regular high school program or offered in a separate facility under a separate administration (Sitlington, 1981a). They are the primary source of specific vocational training for all students. Ten percent of these vocational education funds are mandated for use in training the handicapped. The Carl E. Perkins Act, the most recently passed vocational education legislation, places particular emphasis on including handicapped learners in ongoing vocational training programs and on gathering vocational assessment information on these students.

The field of vocational rehabilitation, and the state rehabilitation agency in particular, is also concerned with preparing the handicapped person to become employed in the least restrictive environment. Although the primary emphasis of vocational rehabilitation remains with adults, it is becoming increasingly involved in working with school-aged youth, aged 16 and above, as they prepare to make the transition from school to work. Vocational rehabilitation funds are traditionally used to purchase services from existing agencies and programs. They do, however, also fund innovative programs within rehabilitation centers. Services funded by vocational rehabilitation include (a) medical evaluation, (b) vocational evaluation, (c) prosthetic devices that will make the individual more employable, (d) specific skill training, and (e) job placement and followup.

Although neither of these groups deals specifically with the broader concept of career assessment, both have been integrally involved with the development of the vocational assessment process (Peterson, 1981). In 1966 professionals in the field of vocational evaluation formed the Vocational Evaluation and Work Adjustment Association (VEWAA) as a division of the National Rehabilitation Association. Vocational evaluation or work evaluation has been an important component of programs in rehabilitation centers for a number of years, and the field of vocational rehabilitation still prepares the largest number of professionals with the formal title of vocational evaluation specialists. The vocational evaluation sequence traditionally consists of the use of a number of formal assessment systems in a concentrated amount of time. Data from these instruments are combined with structured observation of the individual in production areas within the rehabilitation center.

The issue of vocational assessment in public schools has more recently emerged within vocational education and special education organizations. Both the National Association of Vocational Education Special Needs Personnel (NAVESNP) and the Division on Career Development (DCD) have formed committees to address the issue of career/vocational assessment as it relates to the school setting. Of particular concern is the application of techniques and processes developed primarily for the rehabilitation setting to programs in the schools, as well as extending the concept to that of "career assessment." Such an extension involves broadening the content of assessment to areas related to all of the career roles an individual might play and extending the assessment process down to the elementary grades.

Types of Information to be Gathered

The close relationship between the career programming and career assessment processes requires that program staff members first determine the types of information needed by their program and then select the assessment techniques and instruments that will provide this information. Types of information that need to be gathered on youth with mental disabilities can be grouped into seven basic categories: (a) medical, with specific emphasis on related health conditions and medication that need to be considered in determining exploratory and final job placements; (b) functional academic skills; (c) interests and environmental preferences; (d) interpersonal skills; (e) work habits and attitudes, including the individual's personal value system and self-concept; (f) learning style, including preferred learning modes and types of effective reinforcers; (g) dexterity and endurance and general vocational skills needed across a number of occupations; and (h) specific vocational skills required for a specific type of occupation. Each of these areas will be discussed in the following paragraphs and Appendix A contains a summary sheet with the major types of information included under each category.

Medical Information

The medical background of all individuals with mental disabilities needs to be investigated, especially that of the severely disabled whose primary handicap is often accompanied by complicating secondary problems. The information gathered in the medical area needs to focus on factors to be considered in placing the youth on paid or nonpaid job experiences and in living situations. Do the student's related health problems eliminate certain occupations because of environmental conditions or excess physical demands? Will the medication taken by the individual interfere with the performance of certain daily living tasks? These and other questions need to be carefully considered for the individual's safety, the safety of all persons in the work and living environment, and for the legal protection of the employer and the training program.

Functional Academic Skills

The area of job-related functional academic skills has received new emphasis with the advent of the technology revolution. Certain academic skills appear to be especially relevant for participation and success in ongoing vocational education programs and subsequent employment environments. A great deal of research (Greenan, 1983, 1984; Pratzner, 1978; Selz, Jones, and Ashley, 1980) has investigated the concept of generalizable or transferable skills. These are generic interpersonal and functional academic skills found in a number of vocational education programs and occupations.

Building upon this literature base, Greenan (1983) systematically validated a core of 28 mathematics skills, 27 communication skills, 20 interpersonal relations skills, and 28 reasoning skills which were required across and within a majority of secondary vocational programs and occupations in the major vocational areas. Examples of these skills include reading data from books and manuals, reading/writing common fractions, and taking responsibility for one's actions.

Youth with mental disabilities often exhibit splinter academic skills which can be a valuable tool in locating employment and in living as independently as possible. Such functional academic skills might include reading signs and specific words required on the job, reading written directions on containers, doing basic addition and subtraction, being able to use a calculator, or using basic measurement tools, such as a ruler or measuring cup. The lack of basic functional academic skills also needs to be considered in determining the specific support the individual will need during training and placement on the job or in a residential option, and in determining the specific skills that need to be targeted during training.

Job-related reading, however, has been found to differ from school reading. Job-related reading is done for the purpose of reading-to-do, while school programs involve reading-to-learn tasks (Seifert, 1979; Diehl and Mikulecky, 1980). Students read mostly textbooks while workers read a variety of materials in different situations throughout the day (Mikulecky, 1982). Job-related literacy tasks are also completed in a context which provides additional information to the language user. Thus, although areas such as functional reading and math skills, written and verbal communication skills, and basic reading comprehension need to be assessed, they should be assessed through situations closely related to the world of work.

Interests and Environmental Preferences

The area of interests is one that is often overlooked in working with the mentally disabled. The accurate assessment of interest is often hindered by the student's lack of awareness and experience with situations and occupations and by the individual's low reading level. Preference for certain types of activities, people, and environments are, however, often very strong and can be noted through structured observation of youth in work and daily living settings and through interviews with the student, the individual's parents or guardians and other professionals who have worked with the student in the past. We all perform more effectively and efficiently if we are doing what we like to do best in the type of environment in which we feel most comfortable; the same principle holds for youth with mental disabilites. The work settings in which the individual is placed during exploration and work experience phases offer ideal settings for observing the learner's environmental and task preferences related to the world of work. Types of information that are important in this area include previous work experience and awareness of occupational options; self-appraisal of abilities; and preference according to occupational cluster, working conditions, and types of work. Information on preferences related to living environments can be gained through interviews with the students and parents.

Interpersonal Skills

This group of skills has been shown to be one of the major causes of unemployment and underemployment of handicapped youth (Matthews, Whang, and

Fawcett, 1980). A growing body of experimental research supports the assertion that mildly handicapped adolescents are not typically as advanced as their nonhandicapped peers in many areas of social-emotional development, including the perception and interpretation of emotions and social situations and the ability to develop empathy (Bachara, 1976; Pearl and Cosden, 1982; Wiig and Harris, 1974;)

Such information provides a strong rationale for the consideration of information on interpersonal skills in the vocational planning process for the individual with a disability; these skills are also crucial for all other aspects of adult life. Such information may include (a) ability to get along with peers, (b) ability to get along with authority figures, (c) the individual's personal value system, (d) self-concept, and (e) consistency of student's moods. It has been found that the student's performance outside the school setting often differs drastically from his or her performance within the school walls. For this reason, information on interpersonal skills should be gathered in social and work-related settings as well as in special education and regular education classes.

Work Habits and Attitudes

The area of work habits and attitudes is closely related to the previous area of interpersonal skills and is often grouped with this area to form the concept of employability skills. The basic work behaviors that are targeted in a vocational training program are the ones to be measured in the assessment process. Such behaviors include (a) endurance and working continuously, (b) responding appropriately to instructions and safety signals given, (c) working without disruption, (d) rate and accuracy, (e) ability to work under pressure, (f) ability to move from one task to another, and (g) attitude about work itself.

Baseline data can be gathered during the initial phases of assessment and continuous data can be kept during all stages of work exploration and experience and final job placement. In this way the learner's behavior can be monitored in simulated or real work environments that require different levels and types of performance.

Learning Style

Information on preferred learning modes and types of effective reinforcers is emerging as some of the most important information to be collected on the learner with a disability. Unfortunately, this information is often the most difficult to obtain, especially through formal assessment procedures. Information in this category includes background on the most effective reinforcers for the individual and the best method of instruction, as well as the decision making skills possessed by the learner. Information on these areas may be best gathered through systematic observation of classroom instruction and interviews with the student, the student's parents, and other professionals who know the individual. Such information is critical for use not only by special education personnel, but by other professionals involved in the vocational training of the individual and by the employers involved in the program.

Dexterity, Endurance, and General Vocational Skills

This category includes skills that are generalizable across a number of occupations and occupational settings and relates to general assembly tasks as well as tasks required in personal service jobs. Such tasks include (a) gross and fine motor skills, (b) manual and finger dexterity, (c) ability to work with large and small tools, (d) strength and stamina, and (e) ability to perform clusters of skills found in a number of target jobs, such as mopping, cleaning tables, using a cash register, filing records. Basic dexterity can be measured by formal dexterity tests; a list of those tests can be found in Appendix B. Information can also be gathered by infrmal tests developed by the special or vocational education staff and by observation of the learner in vocational education programs and in exploratory and work experience settings.

Specific Vocational Skills

Information on specific vocational skills is often the last type of information to be gathered in the assessment process and is usually gathered through systematic observation of the student in vocational education programs and in school-based or community-based sites. Information can also be gathered on vocational skills which the student has learned through hobbies or job-related experiences.

Basic Career/Vocational Assessment Techniques

The basic techniques used in career assessment and the more narrow process of vocational assessment consist of the following (Brolin, 1982; Peterson and Hill, 1982; Sitlington, 1979):

1. Review of previous records.
2. Interviews of parents, the student, former teachers, and employers.
3. Paper-and-pencil tests, such as those measuring functional academics, vocational interest, and attitudes towards work.
4. Manual dexterity tests, measuring areas such as finger dexterity, gross motor skills, and eye-hand coordination.
5. Commercial assessment systems, which measure either performance on basic job tasks or underlying traits associated with many different occupations.
6. Self-developed work samples, which are structured simulations of real-work environments that measure specific types of occupations or underlying traits.
7. Situational assessment instruments, such as rating scales, checklists, and other behavioral observation forms used to systematically observe the individual in real-work environments within the school or community.

The following sections will present each of these techniques and the types of information that can be gained from them. It is the task of each career/vocational education program to first determine the types of information which need to be gathered on the handicapped youth and then identify the assessment techniques that will be the most effective in gathering this information.

Review of Previous Records

One of the first sources of information is previous school records, which contain existing test data and observations of previous teachers. A review of school records might also provide information on whether the student has had previous instruction or experiences related to career/vocational education. It is important to remember when reviewing records, that individuals may react differently to new teachers and a novel situation and sometimes enter a new school or grade with a changed attitude. Thus, while previous information should be considered, time should be taken to form opinions based on observations of the student.

Interviews

Structured interviews of parents, former teachers, former employers, and the student can often be one of the best sources of information on how the individual with mental disabilities functions in the real world. Parents can provide information on the student's participation in family chores, independent skills and activities, use of spare time, and jobs the students may have held. Former teachers can provide information on the situations in which the student learns best, what instruction or experience the student has had in previous grades, and information on functional academics. As with information from previous records, input from these two sources should be combined with current observations.

An interview with the learner can also provide a great deal of information, such as what the student would like to do as an adult, his or her hobbies, and so forth. Of course, information on the student from previous and current employers can be some of the more valuable input, because this is information gathered in the target environment.

While interviews can provide a great deal of information, there are some drawbacks to this technique. First of all, it can be very time-consuming. Second, you must enter the interview with a set of questions and must keep returning to those questions in order to gather information consistently across all sources. Finally, the person being interviewed may be intimidated by the questioner and may provide the responses he or she feels the interviewer wants to hear. With all of these drawbacks, however, the interview process is one of the most useful in gathering relevant information on how the student has functioned in real-life situations.

Paper-and-Pencil Tests

Paper-and-pencil tests are farther removed from the real world of work than are the other assessment techniques. Such tests, however, can provide valuable information on areas like functional academic skills, knowledge of the world of work, and general and specific vocational interests. Sitlington and Wimmer (1978) have listed some safeguards that should be taken in using these instruments. First, will the content and format of the actual results be helpful to you? If the test is to determine vocational interest, do most of the jobs fall within the test taker's ability range? Second, is the test reliable and valid? Third, does the norming population represent a group with which you want to compare your clients? Fourth, can the student understand the questions, even if they are read aloud, and do the responses have a reasonable chance of reflecting the student's knowledge or feelings?

The appropriateness of a given commercial test will depend on the clients to be tested and the type of information sought. A list of sample paper and pencil tests is included in Appendix B. Self-developed paper-and-pencil instruments also may be used and may more closely provide the actual information needed. A commercially developed test, however, should be used if available and appropriate because the construction and validation process are usually more standardized and the results may have more credibility with other professionals.

Manual Dexterity Tests

Another group of commercially available instruments measures areas like eye-hand coordination, finger dexterity, gross motor dexterity, and use of small tools. Many employers require such tests as screening devices for all job applicants. They can be useful, too, in ascertaining how well the student may be able to function on the type of small assembly tasks found in sheltered workshops or assembly lines. Manual dexterity tests can also be an indicator of a person's work habits and attitudes, physical endurance, and stress tolerance.

The same questions directed at paper-and-pencil tests should be considered here. Norm groups for many of these tests are quite dated and may not represent an appropriate population to use as a comparison group. Therefore, one may want to administer the test under standard conditions for comparison with the norm population and then take data on repeated trials since persons with handicaps often show sufficient improvement over repeated administrations to indicate that they can be trained in these skills.

Some of the most commonly used tests of manual dexterity are listed in Appendix B. Many of them measure similar skills, so one should consult the manuals before purchasing.

Commercially Developed Assessment Systems

The available commercially developed assessment systems vary greatly in the types of tasks required of the testee and their resemblance to actual jobs or components of jobs. Many of the systems attempt to assess a person's performance on actual job components or activities, such as alphabetizing file folders, sorting mail, or tuning an engine. Other systems strive to measure the testee's performance on generic tasks common to a number of jobs, involving such skills as wrist-finger speed, independent problem solving, or numerical sorting. In either case, the individual's performance is usually reported not only in terms of the specific tasks assessed but also in terms of other occupations or activities related to those tasks.

As with all commercial products, careful selection of such systems can eliminate many of the problems associated with their use. If a system can be found that measures the performance areas being taught and if money is available for purchasing, commercial systems can provide a great deal of hands-on information about the clients' work habits and attitudes, potential for certain jobs, and interest in these jobs. Brolin (1982) lists 10 questions to ask when considering commercial systems, as follows:

1. Does the system take into account expectancy to fail?

2. Does the system take into account academic limitations?

3. Does the system take into account verbal limitations?

4. Does the system take into account limited experience?

5. Does the system allow for more than one trial on tasks?

6. Does the system allow for repeated instruction and check for comprehension?

7. Does the system have face validity?

8. Does the system allow for appropriate conditions for testing--i.e., pleasant surroundings, orderly administration, and fatigue?

9. Does the system use "spaced" rather than "massed" evaluation?

10. Is the system adequately normed on individuals with handicaps and the workers who are doing the various types of tasks? Have follow-up studies been conducted on its vocational prediction validity?

A list of the commonly used commercial systems is presented in Appendix B. The cost of many of these systems, however, is extremely high.

Self-Developed Work Samples

As noted in the preceding section, commercially developed assessment systems can represent actual jobs or job activities or they can represent generic characteristics or skills common to a number of jobs. The major advantage of commercially available assessment systems over self-developed systems is, of course, that development and standardization have occurred. In contrast, self-developed work samples tend to reflect the type of job placements available in the local geographic areas and are much less expensive to construct. As with commercial systems, local norms can be developed so that clients can be compared with the population with whom they are competing for jobs.

This author believes that work samples developed by the career education, work experience, or vocational training program are the most useful assessment techniques. Not only can work samples be used to assess the disabled individual's ability to perform specific work tasks or use specific equipment, but they can also be used to assess such areas as work habits, stamina, and social skills. A by-product of this type of assessment is also a hands-on exposure to actual job tasks before clients enter the semi-competitive or competitive job market.

For purposes of this chapter, work samples are defined as "simulated representation of work tasks or activities, which may or may not represent an actual job or component of a job" (Sitlington and Wimmer, 1978, p. 80). Work samples can be as large or small or as general or specific as is appropriate for the program. A self-developed work sample may be an exact replica of all or part of a job, such as an assembly task, that exists in a local industry employing a large number of workers. On the other hand, the work sample may consist of the tasks common to an occupation found in several businesses in the city, such as a fry cook in a fast food hamburger restaurant. In either case, the given sample can assess the person's ability to perform a specific job or may be used to gather information on general abilities, such as eye-hand coordination, attention to task, physical stamina, or interest in the job area. An effort should be made to gain as much information as possible from the work sample--in the areas of work habits and attitudes as well as specific job performance.

The process of developing work samples basically involves six steps:

1. Decide on samples to develop. This involves conducting an informal survey of the community to determine which jobs are feasible for the specific disabled population being served, then ascertaining if work samples for some of these jobs have already been developed by someone else. Finally it entails determining which jobs can be most feasibly and realistically represented in a work sample format.

2. Conduct a job analysis. Once a job has been selected, a detailed, accurate analysis must be conducted, to include job tasks, worker requirements, physical demands, and environmental conditions. The content validity of the work sample depends almost solely upon this step.

3. Design and construct the work sample. The job tasks selected for inclusion in the sample must be based on their importance to the job and the feasibility of replicating them in the work sample. These tasks must then be sequenced, with necessary practice sessions and instructions included. Performance on the sample should be measured by number of correct products, number of errors, quality of work, or time required for completion, whichever element is most appropriate for the particular task.

4. Write work sample manual. For the work sample to be systematically administered and used by other professionals, a manual is necessary. It should include two forms of specific instructions--those to be given to the individual and those to be followed by the evaluator. The materials development center at the University of Wisconsin-Stout has designed a standard format for such a manual that allows agencies and individuals to use work samples developed by others.

5. Establish norms. Establishing and updating norms is an ongoing process. The groups with whom the individual is to be compared should be carefully selected and should reflect the population with whom the person with a handicap will be competing for a job. Percentile scores or standard scores are most often used in establishing norm tables. More information on these methods can be found in any standard measurement text.

6. Establish estimates of reliability and validity. This step is one most often overlooked in self-developed work samples, but it is probably one of the most important. Elaborate statistical calculations do not have to be carried out, but it is necessary to see if the scores obtained on the work sample are consistent and if the sample measures what it purports to measure. Test-retest reliability is probably the most useful statistic in determining consistency. In terms of validity, it is most useful to determine if the essential tasks or activities of the job itself are

realistically included in the work sample and if individuals who do well on the sample perform well on the real job that the sample represents.

Work sample development is a time-consuming process, particularly when doing it the first time. One must identify the top priority samples to be constructed first and also become aware of work samples developed by other programs that may be adapted or used as is. The Materials Development Center at the University of Wisconsin-Stout has established a Work Sample Clearinghouse to facilitate exchange of self-developed samples. This is a good resource for programs just beginning work sample collection.

Situational Assessment

Situational assessment is the assessment technique most closely related to the target environment of the trainee. This approach involves systematically observing the individual in an actual work situation through the use of rating scales or other behavior observation devices. The work situation could initially be an in-school work station or a job station in a private vocational training program. Eventually, though, information should be gathered on the individual in the environment where he or she will be expected to function, whether it be sheltered, semi-competitive, or competitive employment.

This procedure is highly important in providing information on the general prevocational training needs and traits of the client (e.g., work habits and attitudes) because previously unforeseen strengths and weaknesses often appear in real life situations. Situational assessment also provides an example of how the assessment process can be integrated into the ongoing vocational program, transforming general impressions of supervisory personnel into data-based conclusions.

Almost every program should have an on-the-job component in which the individual is placed in the community for exploration, work experience, or vocational training. Situational assessment allows the work experience coordinator or vocational supervisor to look at specific facets of the worker's performance in these situations as objectively as possible and to compile information on that performance.

Two things are crucial in situational assessment. First, the observation instruments must focus on the behaviors and attitudes that the supervisor is trying to observe. Second, the instruments used must allow reporting that is as objective as possible.

The employer or person supervising the worker usually completes some type of observational checklist or rating form. The work supervisor, during periodic visits, adds further information through his or her ratings. In both cases, the forms used should provide information that will help in planning and working with the individual. Whether program administrators develop their own form or use existing forms, the criteria must be such that the information obtained will provide necessary and valid data on the individual in the working situation. Esser (1975) has described other available instruments that may be used.

Models of Career/Vocational Assessment

A number of authors have provided models for combining the techniques discussed in the previous section into an assessment process that can be implemented in the schools (Cobb & Larkin, 1985; Halpern, Lehmann, Irvin, & Heiry, 1982; Peterson & Hill, 1982; Sitlington, 1979, 1981b; Sitlington, Brolin, Clark, & Vacanti, 1985; Stodden & Ianacone, 1981). The majority of these models focus on the assessment process as it relates to vocational programming at the secondary or postsecondary level. None of the models really address the broader issue of career assessment. Although each model characterizes the assessment process in a slightly different way, all emphasize its role in providing instructionally relevant information tied to available vocational programming options.

Phelps and Wentling (1977) presented a systems model for the identification, assessment, and evaluation of special needs learners. The identification and assessment system is composed of three phases related to the learner and based on the time progression of a student through a vocational program. The phases include preassessment, formative assessment, and summative assessment. A fourth phase, ultimate assessment, involves evaluating the actual vocational program to determine if its goals and objectives have been met. The first phase, preassessment, involves collecting information about the student's learning strengths and weaknesses and identifying instructional methods, media, and remedial and support services based upon these findings. The second phase, formative assessment, occurs during actual instruction and involves monitoring and evaluating the learner's progress throughout the vocational program. Formative assessment may provide valuable information for revising or updating the student's individualized education program. This information should be fed back into the preassessment phase.

The third phase, summative assessment, occurs after instruction. Summative assessment data assist in evaluating the student's learning, the teacher's instructional success, and the student's present functioning level.

Sitlington (1981b) also stressed that one of the primary roles of the vocational assessment process in the public schools should be to provide information to aid in the development and ongoing review of the Individualized Vocational Plan (IVP) of the special needs student. She identified three phases of assessment. The first of these, initial assessment, involves a concentrated collection of information related to the following areas: (a) medical; (b) educational, (e.g., functional reading and math levels); (c) personal-social behaviors, (e.g., relationships with peers and supervisors) and appearance; (d) interests; (e) work habits and attitudes, such as staying on task; (f) gross and fine motor skills; and (g) preferred learning modes and types of effective reinforcers.

The second phase of the assessment process, entering assessment, would occur as a student enters a specific vocational training program. Information collected during this stage would include the entering knowledge and performance level of the student in the academic and performance areas related to the specific class and best methods to use in working with the student. The third phase, continuous assessment, consists of collecting data on the student's emerging interests, skills, and work habits and attitudes throughout the training program. Information gathered in this third phase is particularly helpful in future planning with the special needs student.

Stodden and Ianacone (1981) proposed an assessment model with three major components: readiness, assessment, and application. The readiness component includes activities that facilitate the individual's personal and occupational awareness, exploration, and understanding and provide information on work values, interests, and entry-level behaviors and skills. The second component, assessment, assists the individual to investigate in-depth interests and abilities within specific vocational areas and actual work roles. This component contains activities sampling a learner's behavior on a variety of test items, work tasks, or situations to compare the student's skills, work habits, attitudes, physical abilities, and personal-social traits to those of a specific group of workers. The third component, application, involves the interpretation, evaluation, and preparation of data collected over time and various assessment situations and compiling the information for use by the interdisciplinary team members who recommend occupational placement and programming options for special needs students.

In keeping with the previous models, Peterson and Hill (1982) proposed three levels of assessment. Level I involves gathering and analyzing existing information and conducting informal interviews for vocational programming. This level involves collecting six basic types of data: (a) data from tests conducted as part of the special education evaluation; (b) informal interview with the student; (c) informal conference with student's parents; (d) information from previous teachers; (e) aptitude, achievement, and ability information; and (f) cumulative records of grades, IQ tests, attendance, and discipline. Level II assessment consists of collecting information on the student's interests and aptitudes, usually through the administration of formal tests. A Level III comprehensive Vocational Assessment is designed to seek out additional information about a student's career interests, strengths, and needs which has not been obtained through Level I and II assessments. This level of assessment, which involves the use of commercial systems, is optional and is recommended only when it is felt that there is not enough information upon which to base the recommendation for an appropriate vocational placement.

Finally, Cobb and Larkin (1985) have proposed a paradigm for vocational assessment that relates the activities and instrumentation to instructional delivery in an ongoing vocational education program. Their paradigm categorizes the vocational assessment process into five chronological purposes: screening, placement, program planning, monitoring of individual progress, and individual program evaluation. The first purpose, screening, asks the main question of whether vocational education is an appropriate curriculum option for the specific handicapped learner. The second component, placement, addresses the question of which program within vocational education is most appropriate. This component involves matching a number of programmatic variables with student interests and strengths and parent concerns.

The third segment of Cobb and Larkin's (1985) model involves assessment for program planning, with emphasis on determining what support services must be provided for the student, based upon a thorough analysis of the interaction between the student, the curriculum, the teacher, other students, facilities and equipment, and home and community. The fourth purpose of assessment involves monitoring individual progress while the student is in the vocational program. As with the models previously discussed, this phase involves collecting continuous data on student performance throughout the program. The final phase, individual program evaluation, involves determining how well the supportive structure has supported the student and determining if a curriculum change is warranted.

BEST PRACTICES IN CAREER/VOCATIONAL ASSESSMENT

The area of career/vocational assessment was seen by the Division on Career Development (DCD) as so critical that representatives of the DCD Committee on Career/Vocational Assessment were asked to draft a position paper on the topic (Sitlington et al., 1985). The following pages present the core of this position paper, which was endorsed by the Executive Committee of the division and which addresses the concept of best practices in career/vocational assessment. The issues identified by the authors centered on (a) definition, purpose, and goals of the career/vocational assessment process; (b) the process and methods utilized; and (c) personnel to be involved.

Definition, Purpose, and Goals

The establishment of an operational definition and purpose of assessment is basic to the other issues discussed in this chapter since it determines to a great extent the methods and processes to be used and the personnel to be involved in the assessment process. The definition and purpose of career assessment must be defined in light of the overall assessment process within special education and the more narrow vocational assessment processes within vocational education and vocational rehabilitation. The Division on Career Development recommends the use of the term "career assessment" to define a developmental process beginning at the elementary level and continuing through adulthood. Career assessment is a broad term that includes "vocational assessment" or "vocational evaluation," much as career education encompasses vocational education. The career assessment process is one which should be integrally related to all aspects of career education, including not only preparation for employment, but also preparation for the roles of productive family member, citizen, and participant in leisure, recreational, and avocational activities which are of benefit to oneself or others. The specific content to be assessed in the career assessment process should be dictated by the components of the career education model being implemented.

The career assessment process should be viewed as a foundation for individualized program planning from kindergarten through adulthood. The goals of this assessment process should be specifically geared to providing the information needed to make decisions in all areas of career education programming; these decisions may be related to developing an individualized program (curriculum content) for the handicapped learner or determining what assistance the learner needs to succeed in an ongoing program. The results of the assessment process should be fully integrated into the individualized education program or other program plan for the individual.

The career assessment process should have the following specific goals: (a) to assess the individual's interests, strengths, and needs that relate to his or her future roles as a family member, citizen, worker, and participant in leisure, recreational, and avocational activities; (b) to assess an individual's ability to learn and profit from instruction and to select the best methods for this instruction; (c) to provide data for determining the best placement within a specific career/vocational program; and (d) to determine the best placement alternatives for the individual at the conclusion of a specific training program.

Process and Methods

The issues of process and methods must also be viewed in light of the approaches taken by vocational rehabilitation and vocational education. There are a number of models of vocational assessment currently in the field and a number of administrative arrangements under which a vocational assessment is carried out. Formal arrangements include vocational assessment centers in high schools or vocational centers, mobile assessment units, or contracts with the vocational evaluation unit of a rehabilitation center. All of the arrangements relate only to the area of vocational assessment. The Division on Career Development advocates the view that career assessment is a continuous process that is integrally related to the ongoing instructional program for the handicapped learner. This process should begin in the elementary grades and continue through adulthood as long as decisions are being made relative to the career preparation of the handicapped individual.

The Division on Career Development does not endorse any specific model or location for implementing the career assessment process. Whether it be done in the classroom setting or in a vocational assessment center or mobile assessment laboratory, the results can be equally valid. The Division on Career Development does, however, emphasize the need to determine the types of information to be collected based on the decisions that will be made in terms of the lifelong career development of the handicapped individual. The Division also emphasizes the need to relate the assessment process to the current preparation needs of the individual. The assessment sequence should be parallel to the career programming sequence developed for each individual and should provide the information needed to make decisions in this program.

The Division on Career Development does not advocate specific methods for obtaining assessment information but endorses certain concepts in the selection of methods and instruments. These considerations are closely correlated with those advocated for any type of assessment process used with the handicapped. First, the selection of assessment methods should be specifically tailored to the types of information that need to be gathered and the decisions to be made. Second, specific instruments should be selected in light of the learning characteristics of the individual to be assessed. Third, the assessment program should use methods and instruments that involve tasks that closely resemble the tasks to be trained. Fourth, the assessment should be conducted in an environment that resembles as closely as possible the target employment or living environment of the handicapped individual. Finally, the assessment process should incorporate a sequence of tasks that obtain a representative sample of the learner's behavior over an extended period of time.

Personnel in the Career Assessment Process

Personnel issues in career/vocational assessment are exceedingly complex. Not only do the issues in vocational assessment for school-aged youth still exist, but the downward extension of age and grade level and expansion of the concept to career assessment also pose additional problems that demand our attention. Questions in the area relate to the roles to be played by a number of professionals, including elementary and secondary level special educators, vocational special needs personnel, rehabilitation personnel, and school psychologists.

The Division on Career Development advocates that the personnel responsible for conducting and coordinating career assessment should be certified in special education when working at the elementary level and certified in secondary special education or vocational special needs education when working at the secondary level. Vocational special needs and rehabilitation personnel should assume primary responsibility at the postsecondary level. This does not mean that counselors, school psychologists, rehabilitation personnel, teachers, administrators, parents, and employers should not be involved in the process. It does mean, however, that the role of coordinating the career assessment process should be restricted to the professional primarily responsible for the learner's career development at any particular stage in the educational process.

The Division on Career Development also advocates that the professionals responsible for coordinating the career assessment process at the elementary level should have background in the areas of career development and informal assessment. The professionals responsible for conducting the career assessment at the secondary and postsecondary levels should demonstrate background and training that meets the minimal standards of preparation in the area of vocational evaluation. The Division recommends that such preparation be based on demonstrated competency or successful completion of training in competencies such as the following:

1. Analysis of entry-level competencies needed in the career development program.
2. Implementation of job analysis procedures.
3. Identification and selection of assessment procedures appropriate for students at various ages and functioning levels.
4. Selection and administration of appropriate assessment instruments.
5. Construction of rating instruments for situational assessment and other behavior observations related to all career roles.
6. Integration and interpretation of assessment data.
7. Application of assessment data to instructional programs within the school setting.

Future Perspectives

Career assessment can be defined as a developmental process beginning at the elementary level and continuing throughout adulthood. This process, which includes the concept of vocational assessment (or vocational evaluation), should be integrally related to all aspects of career education, including not only preparation for employment, but also preparation for the roles of productive family member, citizen, and participant in leisure, recreational, and avocational activities which are of benefit to oneself or others. The Division on Career Development does not advocate a specific model, setting, or method for implementing career assessment, but emphasizes that the career assessment process should be an ongoing sequence designed to parallel the career programming sequence developed for each individual and should provide the information needed to make decisions in this program.

Where the future lies in the area of career assessment is difficult to predict, but there are at least four major trends that can be foreseen.

First, the issue of the career assessment process within public school programs will continue to be addressed. The Division on Career Development and the National Association of Vocational Education Special Needs Personnel have established a firm foundation for the discussion of these issues and should continue to address the problem with a united front.

Second, it is this author's view that the heavy reliance on commercial assessment systems will diminish and will be replaced by an approach involving the ongoing collection of data based on the student's performance in different phases of the career education process, including exploration, work experience, and preparation.

Third, the issue of certification of personnel conducting career assessment will move to the forefront. The Commission on Certification of Vocational Evaluation and Work Adjustment Personnel (CCWAVES) is in the process of establishing preparation and experience standards for personnel who will be involved in vocational assessment. Although this certification will most heavily affect professionals serving in rehabilitation centers, it holds a number of implications for vocational assessment personnel in assessment centers within the public schools. It is uncertain how individual states will react to this certifying body and whether or not CCWAVES certification should or will be required of school-based assessment personnel.

Finally, it is hoped that the concept of career education will be more universally integrated into the individualized education programs of all handicapped children and youth. If this integration is to occur, the concept and processes of career assessment must be integrated into the ongoing assessment of all handicapped individuals from the elementary level through adulthood. The emphasis of much of the writing and discussion up to this point has been on identifying the role of vocational assessment in public school programs. Although we need to continue to pursue this area, we also need to devote our efforts to developing models of career assessment that will begin in elementary school and assess the skills needed by the individual with a disability to be a productive family member, citizen, and participant in leisure, recreational, and vocational activities.

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Appendix A

TYPES OF INFORMATION TO BE GATHERED DURING THE VOCATIONAL/CAREER ASSESSMENT PROCESS*

Please rate each of the following types of information in regard to how important you feel it is for your particular and type of special needs learner.

+ for very important
for useful, but not crucial
- for not important or not useful

A. Medical

___ Visual and auditory acuity
___ Physical condition and capacity
___ Physical disabilities
___ Chronic illnesses
___ Medication
___ Specific physical limitations
___ Others (Please list): ____________________

____

B. Functional Academics

___ Reading comprehension
___ Sight vocabulary
___ Functional reading skills (job applications, TV Guide, bus schedules, etc.)
___ Functional math skills (use of rules, cooking implements, making change, etc.)
___ Addition and subtraction skills
___ Communication skills (printing/writing, sentence structure, spelling)
___ Verbal skills (basic conversation skills, nonverbal/body communication skills)
___ Study skills (outlining, finding main ideas)
___ Others (Please list): ____________________

____

C. Personal/Social

___ Acceptance by student of special education placement (if applicable)
___ Motivational and incentive values
___ Self esteem
___ Ability to get along with peers
___ Ability to get along with authority figures (parents, teachers, boss)
___ General appearance
___ Consistency of student's moods
___ Use of social amenities
___ Others (Please list): ____________________

____

D. Interests

___ Vocational experience/knowledge base
___ Self-appraisal of abilities
___ Projected desirable life styles
___ Preference according to occupational clusters
___ Preference for working conditions
___ Preference for types of work (data, people, things)
___ Others (Please list): ____________________

____

E. Work Habits and Attitudes

___ Attitude about work itself
___ On-task behavior and consistency of performance
___ Speed, accuracy, and precision of work
___ Adjustment to repetition
___ Endurance/Stamina
___ Self confidence
___ Need for supervision
___ Self direction/Ability to take initiative
___ Ability to follow directions
___ Acceptance of authority
___ Relationships with fellow workers
___ Ability to work under pressure
___ Conformity to schedule
___ Ability to move from task to task
___ Others (Please list): ____________________

____

F. Manual Dexterity

___ Gross motor skills
___ Fine motor skills
___ Manual and finger dexterity
___ Eye-hand coordination
___ Ability to work with large/small tools
___ Others (Please list): ____________________

____

G. Learning Style

___ Personal reinforcers
___ Best method(s) of instruction
___ Decision-making skills
___ Others (Please list): ____________________

____

*Compiled by: Patricia L. Sitlington, Bureau of Special Education, Department of Education, Des Moines, IA 50319.

SAMPLE PAPER/PENCIL TESTS, MANUAL DEXTERITY TESTS, AND COMMERCIAL SYSTEMS

I. PAPER AND PENCIL TESTS

A. Interest Inventories

Name: AAMD READING-FREE VOCATIONAL INTEREST INVENTORY

Address: AAMD
5201 Connecticut Avenue N.W.
Washington, D.C. 20015

Description: Separate male/female form. Most liked of three pictures is circled. Designed for MR's. 11 cluster areas automotive, building trades, clerical, animal care, food service, patient care, horticulture, janitorial, personal service, laundry service, and materials handling.

Disability Population: MR 14 and older

Name: GEIST PICTURE INTEREST INVENTORY

Address: Western Psychological Service
1203 Wilshire Boulevard
Los Angeles, CA 90005

Description: Separate male/female forms. Selects 1 out of 3 pictures showing jobs on activities. Covers 12 interest areas: persuasive, clerical, mechanical, musical, scientific, outdoor literary, computational, artistic, social service, dramatic, and personal service.

Disability Population: LD and ED

Name: PICTURE INTEREST EXPLORATORY SURVEY (PIES)

Address: Career Education Media
P.O. Box 27083
Tempe, AZ 85282

Description: Series of slide showing hand working. Student circles number or pictures they like on answer sheet.

Disability Population: LD, ED, High EMR, Deaf

Name: WIDE RANGE INTEREST OPINION TEST (WRIOT)

Address: Jastak Assessment Systems, Inc.
1526 Gilkin Avenue
Wilmington, DE 19306

Description: Students pick pictures in a spiral booklet most like and most disliked and circle on answer sheet. Profile on 18 occupational groups and 2 attitudes.

Population: Age 5 and older, MMH, MOMH, Deaf, ED, LD

Name: OCCUPATIONAL INTEREST SCRAMBLE SURVEY, VESEP II

Address: Vocational Education/Special Education Project
Central Michigan University
225 Sloan Hall
Mt. Pleasant, MI 48859

Description: 100 pictures of jobs-students separates on scale from 1-10 (lowest to highest). Jobs based on 10 occupational subgroup: agriculture/natural resources, automotive and power service, clothing/textile service, construction, distribution, food preparation and service, graphics and communication, health, manufacturing, and office and business.

Population: All especially 14 and older

B. Functional Skills Inventories

Name: BRIGANCE DIAGNOSTIC INVENTORY OF ESSENTIAL SKILLS

Address: Curriculum Associates, Inc.
5 Esquire Road
North Billerica, MA 01862

Description: Determines level of functioning in regards to skills needed to function in society. Two major areas: academic prerequisites to applied skills (work recognition, oral reading, work analysis, numbers, fractions, etc.) and applied skills (forms, health and safety, travel, money, food, clothing, etc.)

Population: MMH, LD, ED, 9th grade and above

Name: SOCIAL AND PREVOCATIONAL BATTERY (SPIB)

Address: Publisher's Test Service
2500 Garden Road
Monterey, CA 93940

Description: 9 tests measuring: purchasing habits, budgeting, banking, job-related behavior, job search skills, home management, health care, hygiene and grooming, and functional signs. Administered orally, pretest included.

Population: MMH, MOMH, 7th grade and above

Name: STREET SURVIVAL SKILLS QUESTIONNAIRE (SSSQ)

Address: McCarron-Dial Systems
P.O. Box 45628
Dallas, TX 75245

Description: Measures adaptive behavior skills. 9 tests measure: basic concepts, functional signs, tools, domestic management, health and safety, public services, time, money, and measurement. Administered orally.

Population: MMH, MOMH

Name: TEST FOR EVERYDAY LIVING (TEL)

Address: Publisher's Test Service
2500 Garden Road
Monterey, CA 93940

Description: 7 tests measuring: purchasing, banking, budgeting, health care, home management, job search skills, and job-related habits. Administered orally.

Population: LD

Name: CAREER ADAPTIVE BEHAVIOR INVENTORY (CAB)

Address: Special Child Publication
4535 Union Bay Place NE
Seattle, WA 98105

Description: 120 behavior items covering academics, communication, interest, leisure, motor, responsibility, self concept, self help, socialization, and task performance. Score obtained through direct observation.

Population: All MR ages

Name: PREVOCATIONAL ASSESSMENT AND CURRICULUM GUIDE

Address: Exceptional Education
P.O. Box 15308
Seattle, WA 98115

Description: Assess worker behaviors, interaction skill, and self-help skills necessary for entry into sheltered employment. Scores obtained through direct observation.

Population: All MR, LD, ED

C. Work Values and Attitudes

Name: PROGRAM FOR ASSESSING YOUTH EMPLOYABILITY SKILLS (PAYES)

Address: Program of Vocational Education
Educational Testing Service
Princeton, NJ 08541-6736

Description: Measures 3 attitudes (job holding skills, attitudes towards supervision, self-confidence) 3 cognitive (job knowledge, job seeking skills/reasoning, vocational interest). Pictures, 4th and 5th grade reading level.

Population: High MMH, Deaf, LD, ED, Blind (mod), Disadv., 14 and older

Name: OHIO WORK VALUES INVENTORY

Address: The Psychological Corporation
757 Third Avenue
New York, NY 10017

Description: Designed to help high school students respond to job activities on a scale ranging from "like very much" to "dislike very much."

Population: Deaf, LD, ED, Blind, OH, Grades 8-12

Name: MINNESOTA IMPORTANCE QUESTIONNAIRE (MIQ)

Address: Vocational Psychology Research
Elliott Hall
University of Minnesota
Minneapolis, MN 55455

Description: Measures vocational reinforcer needs and compares to reinforcers available in job computer profile, ranking occupational groups in order of preference.

Population: LD, ED, Deaf, Blind (mod), MMH (mod), 5th grade reading level

Name: SELF-DIRECTED SEARCH

Address: Consulting Psychologist's Press
577 College
Palo Alto, CA 94306

Description: Self administered vocational exploration. Fill out booklet and obtain code. Look up jobs in an "Occupations Finder" booklet.

Population: LD, ED, OH, Deaf, MMH (mod)

Name: FORER VOCATIONAL SURVEY

Address: Western Psychological Services
12031 Wilshire Boulevard
Los Angeles, CA 90022

Description: Students complete sentences based on reactions to authority, co-workers, failure, taking orders, and responsibility, along with some vocational goals. Male and female forms.

Population: MR, LD, ED, Disadv.

II. MANUAL DEXTERITY TESTS

Name: GENERAL APTITUDE TEST BATTERY (GATB)

Address: Contact local State Employment Service

Description: 12 subtests, 8 paper and pencil, 4 involving apparatus measuring 9 aptitudes: general learning ability; verbal; numerical; spatial perception; motor coordination; finger dexterity; manual dexterity.

Population: Some EMR, Deaf, Blind and physical, LD, ED, grades 9 and above with 6th grade reading level

Name: BENNETT MECHANICAL COMPREHENSION TEST

Address: The Psychological Corporation
7555 Caldwell Avenue
Chicago, IL 60648

Description: Mechanical, measures mechanical reasoning. Student answers questions about a picture. 5th grade reading level.

Population: EMR (some), Deaf, LD, physical, ED, 5th grade reading or test can be read

Name: MINNESOTA CLERICAL TEST

Address: The Psychological Corporation
7555 Caldwell Avenue
Chicago, IL 60648

Description: Test speed and accuracy in clerical tasks. Two parts: number and name checking.

Population: EMR, Deaf, LD, ED, Physical

Name: BENNETT HAND TOOL DEXTERITY TEST

Address: The Psychological Corporation
7555 Caldwell Avenue
Chicago, IL 60648

Description: Manual dexterity with tools. Students use wrenches and screwdrivers to disassemble nuts and bolts, remove and replace on a board.

Population: All groups

Name: CRAWFORD SMALL PARTS DEXTERITY TEST

Address: The Psychological Corporation
7555 Caldwell Avenue
Chicago, IL 60648

Description: Fine eye-hand coordination using small tools. Two parts each with practice: 1) place pins in hole using tweezers and place collars over the pin, 2) with screwdriver put screws in place.

Population: All groups

Name: PENNSYLVANIA BI-MANUAL WORKSAMPLE

Address: Education Test Bureau
American Guidance Service
Publishers Building
Circle Pine, MN 55014

Description: Hand and finger dexterity. Two parts: assemble nuts and bolts; dissemble nuts and bolts.

Population: All groups ages 15 and older

Name: PURDUE PEGBOARD

Address: Science Research Associates
259 East Erie
Chicago, IL 60610

Description: Cross manual and finger dexterity. Pegboard with 4 cups and 2 rows of 25 holes in which pins are inserted in a timed period.

Population: All groups

Name: MINNESOTA SPATIAL OF MANIPULATION TEST

Address: American Guidance Service
Publishers Building
Circle Pines, MN 55014

Description: Arm-hand dexterity. Plastic colored discs are manipulated through several procedures: placing, displacing, turning one hand turning, and two hand turning.

Population: All groups

Name: MINNESOTA SPATIAL RELATIONS TEST

Address: American Guidance Service
Publishers Building
Circle Pines, MN 55014

Description: Spatial perception. Four boards with holes of various shapes. Place shapes in holes in all 4 boards.

Population: All groups

III COMMERCIAL SYSTEMS

Name: TRAINEE PERFORMANCE SAMPLE (TPS)

Address: NGG Associates, Inc.
Ideal Systems
West Allis, WS 53227

Description: Based on sheltered workshop type activities. Assesses kinds of training needed by measuring student on verbal, modeling, and prompt types of questions.

Population: All MR

Name: TALENT ASSESSMENT PROGRAM (TAP)

Address: Talent Assessment, Inc.
P.O. Box 5087
Jacksonville, FL 32205

Description: Based on occupational clusters of jobs. 10 tests assessing: structural and mechanical visualization; discrimination by size and shape;

discrimination by color; tactile discrimination; fine dexterity without tools; gross dexterity without tools; fine dexterity with tools; gross dexterity with tools; flowpath visualization; and retention of structural and mechanical detail. Approximate cost: $3,200.00

Populations: All except TMR

Name: VOCATIONAL EVALUATION SYSTEM (SINGER)

Address: New Concepts Corporation
Singer Career Systems
1802 Division Street
Morris, IL 60450

Description: 25 work samples in individual carrels. Work samples include: bench assemble, plumbing and pipe fitting, woodworking, cooking and baking, small engine service, medical service, cosmetology.

Population: All groups, MR, LD, ED, Disadv.

Name: MICROTOWER

Address: ICD Rehabilitation and Research Center
340 E. 24th Street
New York, NY 10010

Description: 13 work samples assessing major areas: verbal skills, numerical skills, clerical perception skills, motor skills, and spatial skills. Designed for group evaluation using taped instructions and an illustrated photo book. Cost is based on how many will be taking the test.

Population: EMR, LD, ED, Blind, High school and older

Name: MICRO COMPUTER EVALUATION AND SCREENING ASSESSMENT (MESA)

Address: VALPAR Corporation
3801 East 34th Street
Tucson, AZ 85713

Description: Evaluation using micro computers. Assesses: hardware use, computer assessment (perceptual, motor, visual, academic and reasoning skills), physical capacity and mobility, and vocational interests and awareness. Client performance is compared to requirements set by employers and to job clusters in the DOT.

Population: All groups

Chapter Six

Transition

Roger C. Hoffman

OVERVIEW

How would you react if you were told, that as a teacher of students with mental disabilities, you alone were responsible for the preparation, facilitation and appropriate placement of your student into competitive employment? Impossible? Yes!

What would your reaction be if you were told to create a model of full services for your students that would span the school to adult environment or if you were instructed to create written agreements for services with Vocational Rehabilitation Services when none had existed in the past? What if you were told you needed to create a directory of all adult options available to an individual within your region upon graduation? Easy tasks? No!

For many educators, information on the concept of transition is not new. Unfortunately, due to the complexity of the topic, much of the information has been misunderstood. In many cases its perceived meaning has come across as unrealistic demands.

A normal reaction to unrealistic requests may be to simply put them aside. You have functioned adequately in the past. You have had some success as reflected in the outcomes of your students. Things are really not as bad as other people would make them out to be.

Sadly enough, if the national and state statistics are to be believed, there is a problem. It is becoming increasingly apparent that our students are not prepared for the adult environment that they are about to enter. In addition, those students enter environments that do not have the services needed to further develop skills or the support networks that would assure later success.

The recognition of those problems is the foundation of the concept of transition. A closer examination of this concept will show that although transition is complex and far reaching, it is realistic and achievable if everyone does their part.

What is important to keep in mind in exploring the concept of transition is it calls into play two roles for educators. The first role is that of an "expert:" The expert on the needs of those individuals with a mental disability and the barriers they face when they move from the educational environment to the adult environment, the expert on the unmet needs of the students, and the expert on what linkages, services, or state interagency agreements might be needed to support those students in the transition process. Through that role, needed information is provided to others so that they can provide the leadership and support required to facilitate efforts to transition specific students.

An expert's role is not a passive one. It requires the ability to articulate those needs and barriers in such a way that they are understood by those individuals who will be working on state, regional, and local components of the transition initiative. It requires seeking out, identifying, and communicating with those individuals involved in the formulation of transition planning.

The second role in transition for educators is as a active member of an expanded team. That team will need to focus on a given student and assess their needs for the remaining school years and beyond. In that role, an educator needs a strong knowledge of the community which the students will be entering and needs to be able to involve individuals from the community in the team and in the planning process for students. In this role, an educator is one of many players who will be looking at the facilitation of movement for the student from one environment to another.

The Concept of Transition

With these considerations in mind, let us take a closer look at the concept of transition. A dictionary definition of the word transition would bring in the concept of movement, more specifically "the process of changing from one form, state, activity, or place to another." Under that definition, it is clear that everyone experiences multiple transitions. It may be a change in job, or it may have been uncertainty as one left home and proceeded to college or work. Transitions are natural occurences that encompass many stages of every individual's life.

The transition discussed here, however, is focused on what the data have shown to be one of the most problematic transitions for everyone. That transition is the movement from the school environment to adult life. This transition also focuses on the individual with a disability as they make that movement.

For an individual with a disability, the movement from education to adult situations becomes more complex and, therefore, more problematic. Perceptions and misperceptions of disability, the existence of multiple services in a seemingly disorganized array, along with a lack of knowledge of how to ascertain or access needed services, compounds this otherwise difficult move.

Through Public Law 94-142 great strides have been made in education for all individuals with a disability. The public schools have offered these students a single point of entry into educational services, regardless of where they reside or where they might move. All special education students are provided a team of individuals to concentrate their thoughts and energies on that one student. As a result of that team effort, an Individual Education Plan is developed which commits to writing those programs and activities, projected to lead to further development and refinement of skills. Lastly, also offered are supportive services, including as appropriate, therapies, specialized equipment to help facilitate access to education opportunities and even transportation. All of those benefits listed above are to be offered within an environment that should be as close as possible to those educational environments offered to other non-disabled individuals.

As a student, his or her parents, and the teacher begin to look toward the end of school programming, they see none of the advantages mandated through Public Law 94-142 available in the adult community. Instead they find a confusing and often duplicative array of services. Those services, in some cases, meet none of the individual students needs. There is, in most cases, no single service entry point and rather, seemingly endless searching. The individual (when services are secured) may wind up with multiple plans. Each of those plans may encompass only parts of the identified needs and may lack any concrete offering of needed support.

Exploring the significant differences between the offerings of the educational environment and the adult environment, it is instructive to look at the statistics that report on the outcome of our educational process. An implied outcome of education is preparation for an optimal adjustment within our society including employment and other life activities. Yet we see that between 50 and 80% of individuals with a disability, of working age, are unemployed or underemployed (Will, 1984). We have also had the opportunity to look at individuals with disabilities who have left education programs through recent state longitudinal follow-up studies. Two such studies (Hasazi, Gordon & Roe, 1985; Mithaug, Horiuchi & Fanning, 1985) generally reinforce those high unemployment figures and speak of other negative adjustments of the individuals to their community.

These disappointing outcomes, linked with national projections of 250,000 - 300,000 students leaving special education on a yearly basis, led the Office of Special Education and Rehabilitation Services (OSERS) to issue a position paper on the topic of transitioning (Will, 1984). This position paper heralded a national transition initiative, reinforced by millions of dollars, to provide demonstration projects in the area of transitional services.

The OSERS initiative (Will, 1984) describe transition as "a bridge between the security and structure offered by the school and the opportunities and risks of adult life" (p. 1). Within this context, it talks of the need for secure foundations at both ends of the bridge in addition to a solid span. This analogy points out the need for appropriate school preparation (one end of the bridge), support available upon exiting school (the span of the bridge), and opportunities and services available as appropriate in the adult community (the other end of the span) to provide a smooth transition.

Through the OSERS definition we can appreciate that the concept of transition is indeed complex and encompasses many environments and services, as well as individual actors. Also, from this definition we can appreciate that a discussion of transition leads to talk of such concepts as joint agreements, development of models of service delivery, legislative mandates, and state level initiatives. It is those concepts that seem so far removed from the classroom. How am I as an individual teacher going to impact on legislation, state initiatives and service delivery models? At this point the concept of transition appears to elicit unrealistic demands. Yet, we must recognize that part of the transition movement has to include joint agreements, model building, and so forth.

Chances are you will not be directly involved in these activities. But, even without direct involvement you should still have a knowledge of what is happening and you must make the effort to input your needs and the needs of your students into those activities.

This is where your role becomes one of an expert. Even if you are not directly part of building a transition model for Iowa, or in working out agreements between state agencies, these activities must reflect your needs. You will need to understand what is being done and whether the potential outcomes of these efforts will facilitate your personal transition activities.

The following sections will give you a brief overview of joint agreements, model development, legislation, and state initiatives. Please keep in mind as you review these sections that while your involvement may be indirect, they are important to your personal activities in the area of transition.

Joint Agreements

A joint agreement commits to writing specific actions that will occur in the transition process between the parties entering into the agreement. In this way we can begin to specify, in writing, who will do specific activities and for whom. To reinforce cooperation and communication, joint agreements between state agencies, schools, and adult providers will have to be secured. As soon as the education sector recognizes that it cannot provide all of the services needed by an individual with a disability to make an optimal adjustment within the adult community, the recognition that it must look to other agencies and services becomes apparent. Interagency cooperation, formalized through joint agreements, prepares education to deliver specified services. That preparation can then be completed with the knowledge that those services will be reinforced or continued within the next environment. This process should also look toward the establishment of the required ongoing support, support that would help an individual after the school years as they mature within the adult environment. This type of ongoing support, developed through joint agreements, is mandatory if we are no longer satisfied with individuals entering an environment of no services, duplicate services, or incomplete services. Just as we recognize that no single educator, individually, can do all things for a given student, we must also recognize that no one single program or service can do it all.

In spite of this apparent need for written agreements, it would appear that the existence of formal written agreements as a part of transition are minimal (Benz & Halpern, 1987). To maximize transition opportunities, additional interagency cooperation, reflected through written joint agreements, must be achieved.

Interagency cooperation, with resulting agreements, can provide the following outcomes, if applied properly:

1. It can prevent needless duplication of service.
2. It can provide a coordinated system of services to meet local needs.
3. It can provide continuity between services that are related or dependent on one another.
4. It can help save already scarce resources.
5. It can identify gaps in the system.
6. It can introduce a consistency of approach among services.
7. It can provide a reliable mechanism for sharing information. (Kelker, et al, 1986).

All of these potential outcomes are needed to achieve a smooth transition for students.

Model Development

Inherent in a complex concept such as transition is the need for systematic, replicable approaches that display movement of an individual from the school environment to an adult environment. In order to do this, the development of a model of transition must be put forward. This model should help create, replicate, and disseminate approaches to transition. With few exceptions, each state that has developed a transition initiative has had a model to lead the way. These models outline agencies and individuals involved in the process, curriculum and services, approaches, and evaluation. The state of Iowa is in the process of developing such a model through the Iowa Transition Initiative. Most likely this model for Iowa will draw upon successful approaches to transition as reflected in Iowa and other states.

The model that the Transition Planning Initiative will develop needs to encompass far more than the specific delivery of services. That model must also look at theories of organizational change and inter-organizational behavior (Johnson, Bruininks, & Thurlow, 1987). Consideration has to be given to constructive changes to systems to further transition activities. It must facilitate ways that agencies, services, organizations, and individuals can better communicate.

Legislation

Interagency cooperation (even more formalized approaches including joint agreements and philosophical approaches to services through models) sometimes requires the force of legislation to become fully implemented. Although there has been recent transition legislation in the states of Massachusets, New York, and Pennsylvania, only a few states have responded to the transition initiative through legislation (NASDSE, 1986).

In 1986 the Northeast Regional Resource Center summarized a survey of 18 states in their Guide to the Efforts of Selected Education Agencies to Improve Transition Services (Will, 1986). According to that study, of the 18 reporting states only three states had transition legislation in place and one additional state indicated transition legislation was pending.

Legislation may reflect an inability to provide transition via other avenues (e.g., agreements, interagency boards, etc.). In other cases, legislation may be viewed as reinforcing and guaranteeing continuation of other approaches. For whatever reason, legislation, although not frequently utilized, remains an option for implementation of transition strategies.

State Transition Initiative

The preliminary work on joint agreements, model development and legislation many times starts at a state level. In Iowa, state transition initiatives have been formally discussed since January of 1985. First through an Iowa Transition Advisory Board and now through the Iowa Transition Initiative, state agencies, organizations, and programs have come together to explore avenues and approaches to transition.

The success of the current Transition Initiative is critical for you as an educator. The forthcoming model from the Initiative should provide direction for transition activities. In doing so, the model must support your individual efforts and the movement of your students through the transition phase.

The Transition Initiative hopes to elicit as much input and guidance as possible. In that way, a workable model for transition should result that will help eliminate identified problems and barriers. This model will only be useful for you if it reflects the remediation of those barriers you have identified.

In order to achieve the goal of a workable model, you must exercise your role as an expert. Through the co-chairs of the Transition Initiative and your representatives on the Planning Group your needs and the needs of your students must be heard. In some cases those needs may be unique to your particular geographic area, resource base, or classroom. In many other cases those needs probably reflect more general statewide needs. In any event, those needs will not be addressed unless they are heard.

To have an impact on this Initiative, your expertise must be used to identify and articulate problems and barriers faced by your students. Having identified problems and barriers you will need to seek out those voices that can best articulate those needs.

In considering some of the broad issues that Iowa's Transition Initiative may look at, it is apparent that the primary role of teachers in that initiative will probably be as experts providing information. You may welcome that role as you see the work that still needs to be done, at the state and regional levels, to effect transition. Remember that your role is important. Information on needs is critical to the success of the Transition Initiative. Even if you are satisfied with the transition opportunities available in your area, this is usable information. It can tell us about what is available in your area that is meeting the needs of your students. We must remember that we do have examples of exemplary transition projects in Iowa (Sitlington, 1987). These tend, however, to be "islands of excellence." The outcome of our transition efforts and state transition initiatives has to be the provision of consistent transition opportunities equally accessible throughout our state.

BEST PRACTICES

Looking at transition in the previous section as movement (change from one activity or place to another) or as a bridge between school and adult environments is helpful in understanding the concept only in its broadest sense. Faced with that problem the Iowa Transition Advisory Board through its multi-agency representatives set out to re-define transition in a way that would express the activities required. The culmination of that three month activity was a definition of transition as follows:

> A cooperative planning process for a student with a disability to establish and implement a series of programs and services leading to his or her post-school employment. This process should include the student, advocates, educators, youth and adult service providers, and employees.

This definition stresses the cooperative planning between environments in order to establish needed programs and services. It also sets the stage for the expanded team (student, advocates, educators, youth and adult service providers, and employers) needed to provide input to the transition planning process.

Having reviewed the concept of transition and some components of that concept we move on to the educators role as a leader of an expanded team. The previous section of this paper set up components of transition that deal with some of the broader levels of cooperation, namely joint agreements, development of service delivery models, legislation, and state transition initiatives. Those broader components can form the foundation on which to build. While those efforts are indeed important, Brolin (1985) reminds us:

> "...|transition| is not only a matter of just devising a set of interagency agreements and a cooperative spirit. While these are an important first step, little further progress will be made unless we address the total scope and sequence needed for successful career development to occur." (p. 25)

The following are some of the additional components of transition that are commonly addressed. These are components that will impact on educators more directly. In addition they are components that usually have to be defined given the unique characteristics of the local environment.

Curriculum

There is no way that one or even a dozen approaches to the needs of particular students can be recommended within this section. The two volumes of Best Practices in Mental Disabilities are an excellent resource for curriculum ideas that, modified for individual needs, could be applied to facilitate transition. There are some common themes in the information in those two volumes that, applied to the concept of transition, would say curriculum should:

1. reflect activities that will result in functional skills required for specific activities within the adult environment;
2. reflect one's personal awareness of the options available within the community appropriate for your students;
3. reflect the involvement of parents, appropriate adult service providers, and others in the planning process;
4. be guided by long term (transition) goals which look at the maximum functioning of the individual within the adult environment; and,
5. be guided by appropriate assessment.

Adult Services

In the best of worlds, leaving school would signal an individual's ability to meet the variety of demands of the next environment. In reality, "aging-out" sets up an arbitrary age to determine when an individual leaves school. We can assume that, in many cases, an individual leaving special education will require additional services to fully provide assimilation within the adult environment. This assumption, implied in most transition definitions, reinforces the recognition that school preparation alone is not enough for full assimilation into adult environments.

There is a need for time limited services including further academic preparation, technical or trade preparation, and other services that could be offered through our community college network. There are specialized training and placement programming that might be required. The existence of supported employment options might be beneficial. Many of these services, if made available, could be accessed through the Job Training Partnership Act and Vocational Rehabilitation Services referral. Unfortunately, in too many cases, the appropriate program is not available locally. Also, in too many cases, linkages with Job Training Partnership Act and Vocational Rehabilitation Services are not accomplished prior to the student leaving the school environment.

One key to successful transition opportunities might be an increased existence of, and accessibility to, a range of adult services. Yet, in a survey completed by the National Association of State Directors of Special Education (1986), over 80% of the state directors responding indicated a severe problem with people exiting school programs needing further adult training, treatment or supported work programs and the limited capacity of adult service systems to meet those needs. It is apparent that, as school programs further advance to meet the transition needs of their students, adult services must also recognize the role that they play in transition. Yet, transition studies and other related literature reveals again and again that communication and cooperation between school programs and adult services has been lacking (Hasazi et al, 1985; Wehman, Kreger & Seyforth, 1985).

We need to begin identifying and developing alternatives in the adult community that will reinforce and build on those skills acquired in school programming. We can no longer afford, within education, to work in isolation. We can no longer allow an individual to exit school programming, only to recognize that no comparable support exists within the adult community.

Parent Involvement

The single common link that presently exists between the school and adult environment for a student is the parent. Yet, in some cases, the parent is considered a barrier in the transition process (Benz & Halpern, 1987). At the other extreme, we tend to consider the parent having sole responsibility for transition activities. Both of these perceptions significantly undercut the potential of a parent in the transition process. It tends to overly simplify, to the detriment of the student, the responsibility for the movement of that individual between environments.

As Benz and Halpern (1987) noted, major changes have been implemented in philosophy and service delivery in education. The concept of transition presents yet another change. We as educators have the responsibility to involve parents in this change. This involvement is required in order to further enhance parental understanding and cooperation.

Educators of individuals with less severe disabilities may feel less need to become involved in the transition of their students. For those educators, the perception may be that the student or parent is solely responsible for transition. Transition initiatives have to be based on a recognition that educational outcome statistics tell us we are not accomplishing our goals. This recognition brings us back to the role of the parent. Rather than the parent being the sole person responsible for transitioning, they should be a partner with education and adult services in the smooth movement of the student to adult environments.

Cooperative Efforts

Future joint agreements should set the stage for teachers to provide more systematic, community referenced experiences for a given student. Those experiences should help prepare that student for their transition to the adult environment. Through cooperative efforts, teachers should have support in those activities which meet the unique needs of students as they interface identified resources within the adult environment. This can only be achieved through cooperative efforts with those individuals within the adult community that can help reinforce efforts for a given student.

Rusch and Phelps (1985) summarized cooperative efforts in the following manner:

> "To be maximally effective, we assume that assessment, training and job placement activities that occur during this transition period be jointly planned, implemented and evaluated by special and vocational educators, guidance counselors, social workers, rehabilitation personnel, JTPA personnel, parents and advocates, and co-workers and supervisors from various businesses and industries within the community." (p. 490)

This summation indicates that cooperative efforts include internal cooperation between special and vocational educators, guidance counselors, and social workers, in addition to those individuals that represent the adult community.

Service Information

To provide a functional curriculum, one must have the information on those programs and services within the adult environment that your student may be able to utilize. Benz and Halpern (1987) in a study of secondary special education in the state of Oregon, reported that almost three-quarters of the teachers responding expressed the need for more knowledge of requirements of different work settings to increase the relevance of vocational training. Over half of those teachers also indicated a need for more information on referral processes. In Iowa we have recognized this need and it appears that we are working towards its solution.

At least three Iowa Area Education Agencies (AEA 9, AEA 10, AEA 11), have put together service resource manuals or service brochures for students, teachers and parents. Such information on services, available within a given region, can help in providing needed information on resources within the adult environment. These documents are available to teachers and parents through your Area Education Agency. A number of Area Education Agencies works the theme of transition into their Family/Educator Connection project through newsletters and other activities. These activities represent unique approaches to the problem of communicating information on, and enhancing understanding of, transition within the state of Iowa. A document entitled A Parent Handbook: Transition for School to Adult Life has been developed as a joint project of the Mountain Plains Regional Resource Center and the Iowa Department of Education (Struck, 1988).

Another area of information need for educators is the area of "disincentives". In some cases, a student and parent may fear the loss of certain benefits (e.g., health insurance) through employment. These are real fears and can have a major impact on the decision to pursue competitive employment. A new publication from the Social Security Administration entitled Summary Guide to Social Security and Supplemental Social Security Income Work Incentives for Disabled and Blind, provides useable information on social security and supplemental social security income. This and similar types of information have to be made available to educators, parents and students.

Transition is in fact a complex concept. It encompasses many domains and brings to bear the knowledge and expertise of many actors for the benefit of a given student. Understanding the concept, both as an expert and a participant of an expanded team, should help one assume a role within transition. As an expert you will need to keep abreast of those activities within your state that are occurring through Iowa's Transition Planning Initiative. You will need to identify and communicate your transition needs. Only in that manner will Iowa's model for transition be able to support and reinforce your transition activities.

As a participant of an expanded team you will need to look at changes in your curriculum to facilitate the movement of your students to adult environments. This will include your understanding of, and cooperative working relationships with, adult service providers. It will require that you become knowledgeable of many aspects of your student's home community. Through cooperative efforts you should not be alone in those endeavors. Rather, you should have an expanded resource base to support your efforts.

The concept of transition is bringing about new roles for education. These roles are in fact manageable and achievable through cooperative efforts between the school and adult environments. Just as the concept of transition recognizes that neither educational nor adult environments can provide its programs in isolation, it also recognizes that your new role as an educator cannot be successful without cooperative efforts that span the educational and adult environments.

SUMMARY

The concept of transition of an individual with a disability from school to adult environments is presented from the perspective of what an educator may need to know on the subject. An approach to this complex issue is to perceive the educator's role as a) an expert on the transition needs of the student, and b) a participant of an expanded team for the student.

In fulfilling the role of expert, the educator must be able to identify and articulate those barriers to transition that would best be addressed on a state or regional level. The educator's role as an expert providing information to the Iowa Transition Initiative serves as a primary example.

The second, more direct, role for the educator is that of a participant of an expanded team. The expanded team concept is used to reinforce the role of parents and community representatives in the transition planning process. The areas of curriculum, parent involvement, cooperative efforts and service information, as they relate to the educator and transition, serve as primary components covered.

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Curriculum Content Areas For Consideration

Chapter Seven

Arithmetic

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Sonya Carr

OVERVIEW

This chapter will deal with arithmetic programming for children who have been determined to be significantly below average in mental ability. We will present information of use to teachers of such children if they are willing to adapt existing programs to accommodate the children. Traditional math programming as it exists in regular classrooms has been trimmed, compacted, and watered down for those students who have been classified as Mildly Mentally Retarded. In order to provide these students with the best and most appropriate education in mathematics, teachers must break out of the traditional mold from which they themselves were educated in math, and be willing to be innovative and creative. Mathematical programming for children with mild mental disabilities requires a comprehensive perspective that minimally must include attention to matters of curriculum, instruction and appraisal. This short chapter cannot provide an all-inclusive look at arithmetic programming for mildly handicapped children, but will provide one perspective that is needed to adapt teaching methods to meet their needs.

BASIC CONSIDERATIONS

Curriculum is an essential programming consideration because it determines what will be taught, the sequence and level at which it will be taught, the amount of time that will be devoted to each topic and the contextual scheme (i.e., use of a ditto or a real experience such as shopping) in which the topic will be presented.

Curriculum decisions are paramount in programs for children with mild mental disabilities because known levels of attainment (Cawley & Miller, in progress; Cawley, Miller and Watts, in progress; Cawley & Goodman, 1968) indicate only modest levels of acquisition and facility in applying skills to problem solving (Grise, 1980) and to real-life situations (Levine & Langress, 1985). Therefore, the curriculum decision, or what, when and where certain topics shall be covered, is fundamentally our most important issue. We need to choose those components of mathematics that meet more than the traditional single criterion that there are sufficient dittos available to keep the students busy. What we need to do is to select and teach those elements of mathematics that meet the needs of individuals as children and as adults. If we were truly to do so, we would likely eliminate dittos that stress rote computation from a particular school program.

Instructional considerations must be capable of by-passing the effects of one disability or obstacle, and they must also provide a systematic and flexible system for teacher presentation and learner performance across manipulative, pictorial, spoken, and written alternatives. Ironically, it is the latter type that dominates school programming while the initial three dominate mathematics external to school.

Appraisal enters into our program equation in an important manner. It is appraisal that will provide curriculum specialists and instructional personnel with a representation of the child to guide provision of an appropriate education. This will not be provided through single topic standardized tests such as the Wide Range Achievement Test (Jastak & Jastak, 1978) that measures computation, or through Curriculum-Based Assessment approaches (e.g., Marston & Magnusson, 1985) that do the same unless, of course, computation is our only interest.

BEST PRACTICES

While arithmetic computation is the basis for the preparation of this chapter, we do not agree that programs for children with mental disabilities should be dominated by computation. We do however, propose two appropriate functions for computation in the curriculum for the mentally disabled child. We take the position that computation is valid for school purposes in part due to its value in determining the correct answer in problem solving. The second reason computation is valid for school purposes is its assistance to the individual in estimating or determining an acceptable response in real-life situations.

We reject the proposition that computation is valid because children need to complete reams of dittos or that they have to pass certain tests of basic skills. The Florida data (Grise, 1980) and that of the Everyday Cognition specialists (Levine & Langress, 1985) clearly show that what we do by way of computation in school is of little or no long-term value to children with mental disabilities. Recognizing this, the State of Connecticut (Carter & Leinwand, 1987) has gone so far as to provide 35,000 hand-held calculators to nonhandicapped and handicapped children when they take the state competency test. This allows for a concentration on problem-solving and the role of computation is subordinated.

What we support is functionally-relevant computation, conceptually and meaningfully presented within a framework of problem-solving and applied experiences. Two brief vignettes support our proposal.

1. During the 1986-1987 academic year we (Cawley & Miller, in progress) conducted a demonstration project in science and mathematics for elementary school handicapped children. We employed a regular science and a regular math teacher, neither of whom had any special education background. Each day, Ms. Sandra Bennett, the mathematics teacher taught two self-contained class periods and four resource periods. These segments included children with mental disabilities, behavioral difficulties and a myriad of learning disabilities. Throughout the school year this teacher did not use a single "ditto master" of the traditional computational type. In one 9 week period of work with primary age children with mental disabilities - defined in Louisiana as two standard deviations from the mean - this teacher approached computation from a problem-solving and conceptual perspective every day. The dominant medium was animal crackers and the children learned to compare, to match, to make greater or fewer by certain criteria, to join and to separate and to tabulate. The regular special education teacher could not believe the complexity of the interactions the children were displaying with the basic operations. She kept waiting for the dittos, when, in fact, none were needed.

2. Our second vignette involves six secondary school age youngsters with mild mental disabilities according to the Louisiana criteria described above. Each of these youngsters was given a 92 item test of arithmetic computation. Success was limited to items that did not require renaming. When asked what each would like to learn, they all responded with "division." Their teacher, Ms. Diane Noto, taught them meaningful division in a way that excluded subtraction and multiplication. Once they demonstrated a complete understanding of division, they were

introduced to calculators to minimize the computational burden. As follow-up, the children and the teacher spent the entire 1986-1987 school year working on units that focused on applications and solutions to social problems. Computers and calculators replaced the ditto.

Our two vignettes indicate that it is possible to provide long term and systematic instruction without the ever present workbook or ditto complete with computation items. They also indicate that it is possible to teach children within contextual settings and to focus on meanings and understandings in place of rote learning. They also indicate that it is possible to teach any of the four basic operations on whole numbers in different sequences and that our absolute dependency on addition to subtraction to undertake multiplication to division is unwarranted. Finally, they indicate that it is possible for children to learn about computation in a manner that clears the way for extended nonpaper-pencil activities and the eventual use of calculators.

Counting

Counting by one or more to identify the cardinal property of a set and counting to ten in its many combinations (e.g. ten 10's equal 100) are two skills necessary for effective computation. The former provides the basis for single digit operations and the latter provides the basis for combinations of two or more digits and renaming.

Basic Concepts

Two basic concepts, one-to-one and many-to-one relationships form the basis for counting. Instruction in these areas can take place in the forms of arrangements, patterns and sets.

Arrangements (see Figure 1) provide experiences in one-to-one relations via perceptual and spatial configurations. Making an object as long or the same as one shown (item A) when given the same number of blocks or other objects does not invoke counting, per se. Individuals can make the match by simply aligning the objects with one another. Later, different numbers can be given to the children (item B) and they can observe relative to the extent to which they provide only the correct match. Item C shows two triangles of different sizes. The children could be given sticks of a length equal to the size of a side in the small triangle and instructed to place the sticks on the lines so they make the triangle (this is also a good experience for congruence). They could then be shown the larger triangle and instructed to put the sticks on the line so they make that triangle. Here two smaller sticks would be required and the child would be working with many-to-one relations.

Additional one-to-one activities can be done with item D, only this time items of different length would be utilized.

Patterns are somewhat different from arrangements in that there are specific rules that guide the construction, matching or symbolization that takes place. Figure 2 shows two illustrations. In the first illustration (A), the one-to-one correspondence is developed by matching alternating combinations (i.e., a black box/a white box) and the child must build the figure by placing black/white or white/black combinations. The second illustration (B), requires the child to build the alternating combination but this time the items are all of the same color, but different shapes. Thus, the child must build the triangle/circle or circle/triangle combination. Most of you as readers, will note that the task in the second illustration is what Zeaman and House (1963) described as an interdimensional shift. Shifts were integral facets of their research on attention theory among children with mental disabilities. We thus see that it is possible to integrate the findings and methods of some of our most basic research into our curriculum and instructional programming.

Sets used with or without specific arrangements offer an excellent opportunity to begin the actual counting process and to provide numerous instances for generalization. Sets are just about anything anyone wants them to be. We focus on sets with one-to-one correspondence and sets with many-to-one correspondences. The instructor can put down a number of objects and the child can be requested to put down as many. The objects can be of any category or type. We see this in two basketball teams with 5 players each or one carton of milk for each child at the lunch table. Many-to-one correspondences are beautifully represented with sets. We see the many apples on a single tree, the four tires on an automobile, the two tires on a bike, the large number of cars on a single street, which we often call a traffic jam, an even larger number of people in a single football stadium and an even larger number of grains of rice in a jar. Each member of a group can be given a jar and each can be requested to put the same amount of rice in his/her jar. They can do this by the spoonful or handful and make many-to-one correspondences perceptually. What we need them to understand is that there are numerous grains in each jar and that they agree on their sameness on a perceptual basis. One could always ask them to count, but in such a case one should use very small jars.

One-to-one and many-to-one correspondences are all about us, but the children fail to attend to these. Show them an automobile with only three wheels and they will tell you that it won't run. Intuitively, they know these forms of relationships. What we need to do is highlight them in mathematical terms and to heighten the attention of the children to them.

Counting

Kids like to count. They also like to say the numbers in sequence. Our job is to bring the two into their proper alignment so that when the children say "five" they mean that 5 items represent the "howmanyness" of a set and they mean this regardless of the types of objects in the sets.

We recommend the following stages for use in beginning counting.

1. Counting to name a set after it has been formed.

   The teacher takes some objects and places them on the table and says, "I have three. See my three ________ here. Tell me how many I have here." The child says, "Three."

2. Counting to produce a set.

   The teacher places a set of objects on the table and says, "Show me three ________." The child counts out three objects and the teacher says, "Good, there are three ______".

Figure 1

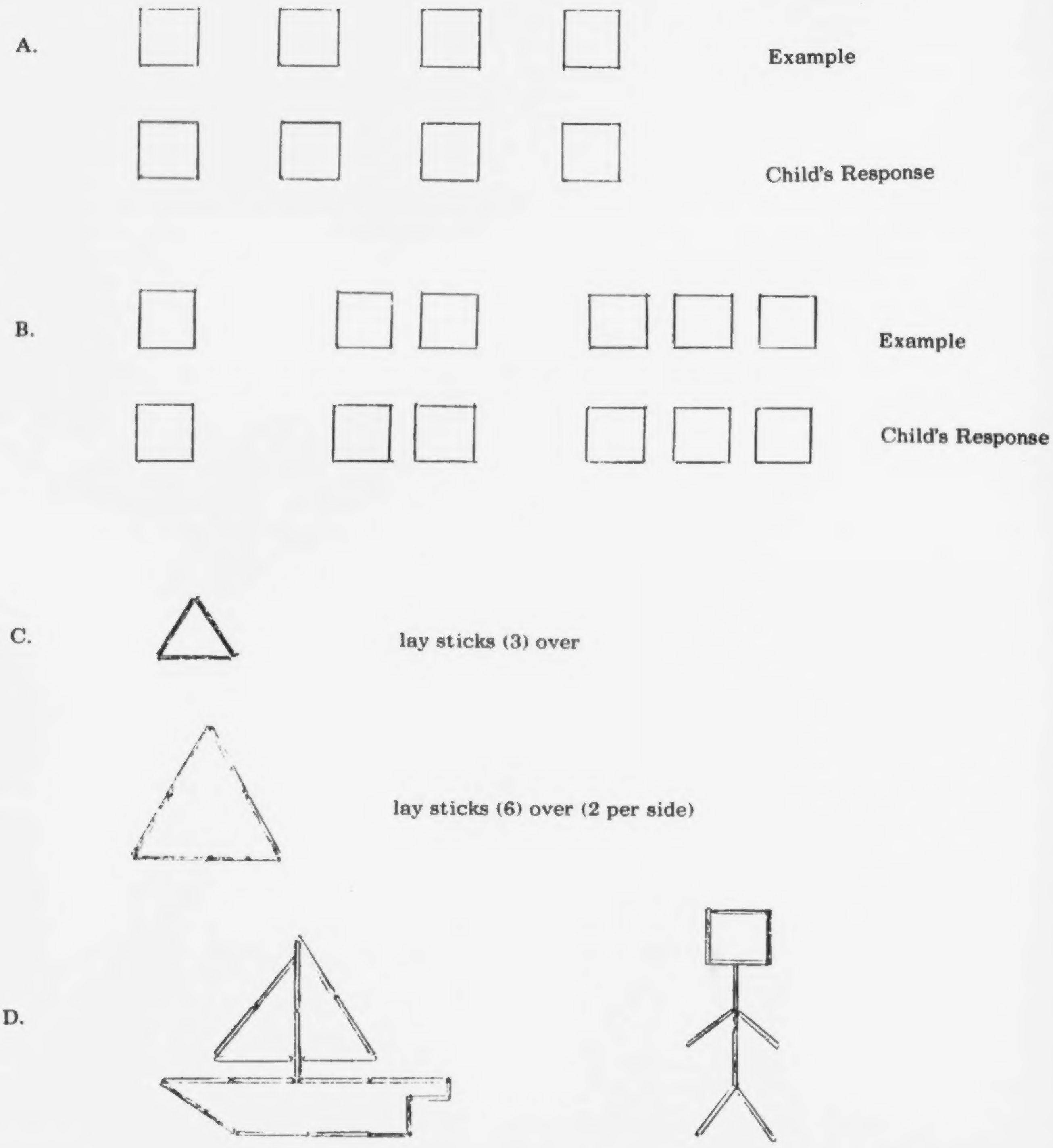
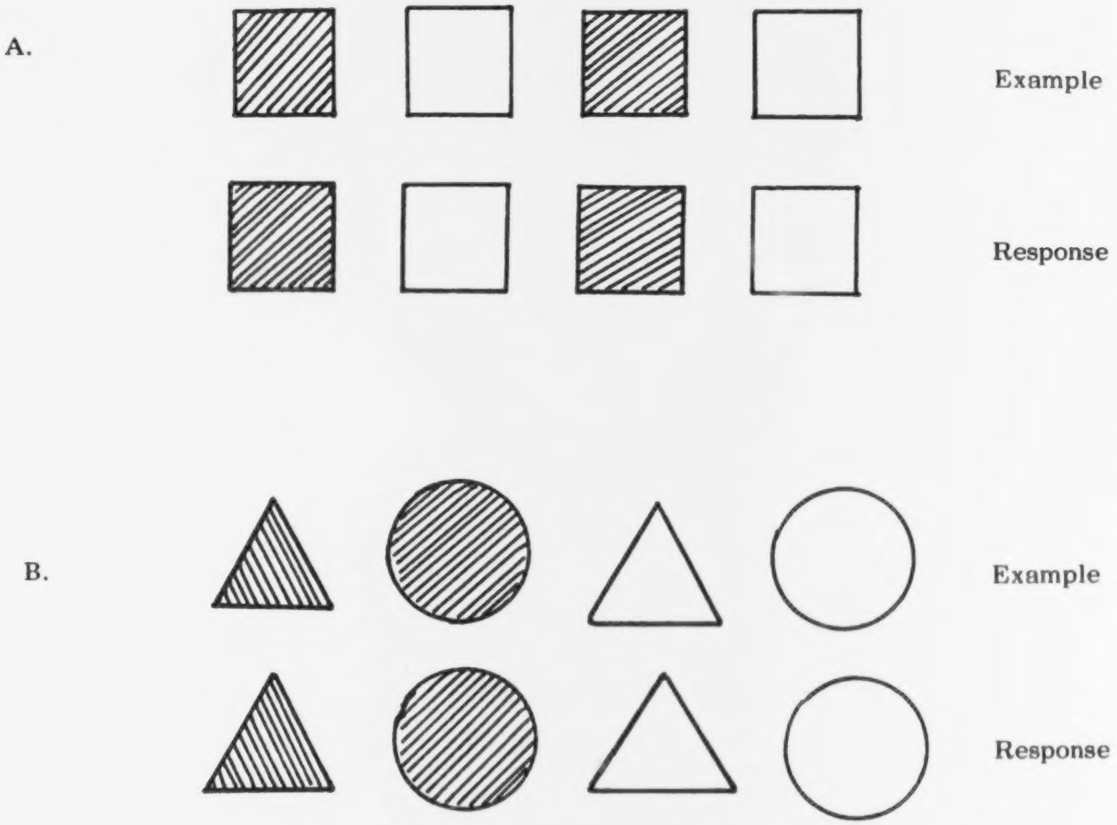

A.
Example
Child's Response
B.
Example
Child's Response
C.
lay sticks (3) over
lay sticks (6) over (2 per side)
D.

Figure 2



3. Counting to identify a set with that many.

   The teacher places two or more sets of objects on the table and says, "See these. Point to the one that has three." Child points.

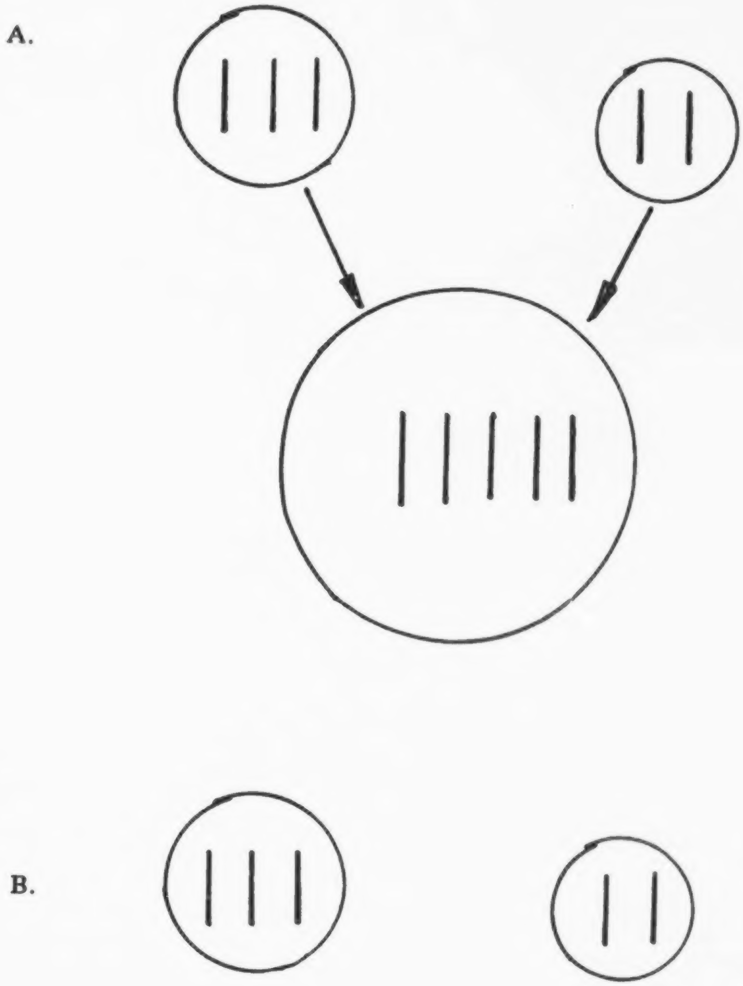
4. Counting to name the set.

   The teacher places some objects on the table and says, "See these. How many do you see?"

There are two additional stages we deem important for counting. The first is "counting on" to join and to name two or more sets as one. The teacher places two or more sets of objects on the table as shown in Figure 3A. The teacher asks the child to count the number of items in each set separately. The teacher then pushes the two sets together and asks the child to count the number of items in the new set.

The teacher next places two or more sets on the table and asks the child to tell how many there are altogether, first by counting the number in one set and then by counting on to the next set, Figure 3. The child counts the first set and says, "Three." As soon as this is done, the teacher removes the set and asks the child to go on to the next set where he counts (four/five) and says, "Five." Our goal is to get the child to "count on." We want to inhibit the type of counting where the child counts the objects in the first set, then counts the objects in the next set and then begins again with the first set to count all the way through. The initial set can be held in the teachers hand and removed as soon as it is counted. Objects can be placed in paper bags or even hidden in different places in the room. The child counts the number in one location, goes to the other and tells how many altogether.

Figure 3



Count each set.

Count items

Child counts on--
i.e. 1,2,3
then 4,5.

The second important element is the counting of "ten." Activities at this stage begin with the counting of sets with ten or more objects. Each time ten is reached the child is to set this many aside or wrap them with a rubber band. Counting to ten initiates the move to renaming and to place value. Children need to understand the interrelationships between ten 1's as one 10 and one 10 as ten 1's. The children described in our second vignette were able to describe ten 1's as one ten when they counted each stick individually and wrapped them with a band. However, when the band was removed and they were asked how many they had, they found it necessary to count the sticks. When students fully understand this relationship, they are ready to join two or more sets whose sum is greater than 9.

As soon as the children are able to count ten and understand the interrelationships among ten 1's and one 10, they should begin counting by ten and eventually understand the interrelationships among ten 1's and one 10 and ten 10's and100 and one hundred 1's as ten 10's. Once this level has been reached, they are ready to join two or more sets which have sums greater than 19, but less than 100. They need to know that 46 is the same as 30 plus 16, that 23 plus 46 is the same as 20 + 3 plus 40 + 6. Children will understand these relationships naturally if the instruction takes place with set of counting objects (e.g. toothpicks). They will not see the relationships if the instructional approach is dominated by paper-pencil activities.

Systematizing Instruction

For many years, our approach to instruction has been guided by the principle that one must be both systematic and flexible. In the classroom or resource setting, we have used a scheme referred to as the Interactive Unit to operationalize our guiding principle. Figure 4 shows the Interactive Unit (Cawley, 1985).

As can be seen there are 16 combinations of teacher/learner interactions with an innumerable number of activities that can take place within each.

The Interactive Unit (Cawley, 1985) meets needs by:

1. systematically varying input/output relations
2. partialling out the effects of one difficulty (e.g. reading) on performance in another area (e.g. math)
3. providing equivalence among manipulative and symbolic representations to develop conceptual learnings
4. guiding the development of an unlimited amount of instructional tasks and materials

The IU consists of rows and columns. As one goes across a row, it is the teacher behavior or input that changes. As one goes down a column it is the learner or response behavior that changes. The teacher can select any input or response combination to meet the needs of the children and to develop the meanings that underlie the operations.

Figure 4

Interactive Unit

Manipulate	Manipulation of objects (piling, arranging and movement)
Display	(Instructor Interaction Presentation of displays (pictures, arrangement of materials)
Say	Oral discussion
Write	Written materials (letters, numerals, words, signs of operation) and marking of these types of materials
Identify	Learner Interaction Selection from multiple choices of nonwritten materials (pictures, objects)

INPUT INSTRUCTOR

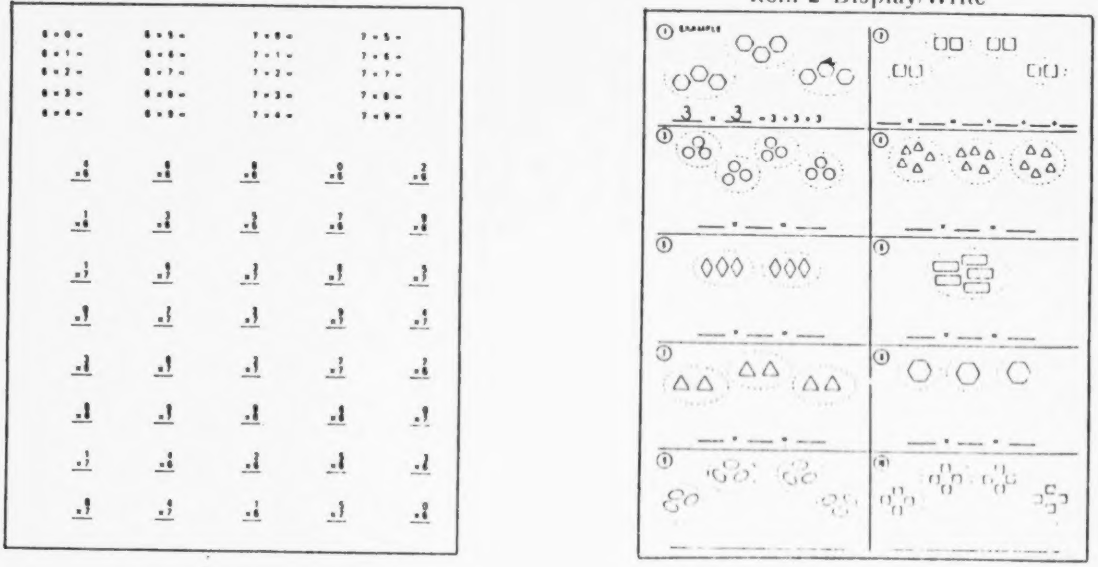
OUTPUT	MANIPULATE	DISPLAY	SAY	WRITE
MANIPULATE				
IDENTIFY				
SAY				
WRITE				

The IU is not hierarchical. Manipulation is not viewed as a lower level of cognition or understanding than symbolic representations. To illustrate, we would wager that more children can do the long division algorithm via paper-pencil than there are those who can do it with toothpicks. Further, there are more errors and deviant representations with paper-pencil than there are with manipulatives. The reason for this is likely our misguided notion of "concrete." Special educators have for years been told that to be concrete is synonymous with the manipulation or the use of objects. Objections to such an interpretation were raised many years ago (Cawley & Vitello, 1972) and they remain today.

Manipulatives are frequently used to teach in a rote manner. Clearly, rote use of manipulatives or the rote learning of basic facts and paper-pencil algorithms (e.g., start with the column on the right; Pelligrino & Goldman 1987) are more intellectually damaging to the handicapped child than a meaningful representation with blocks.

Within the schemata of the IU, the teacher can develop an unlimited number of instructional activities and accompanying materials. Ten of the 16 combinations of the IU can be utilized to prepare worksheets. Figure 5 shows 4 of these combinations used to represent single digit multiplication.

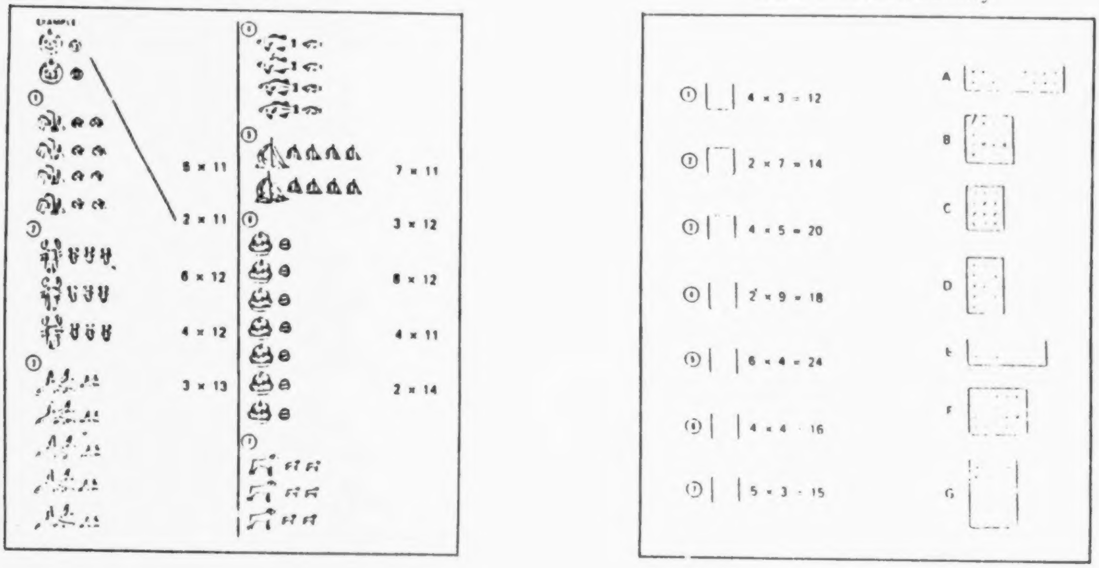
Figure 5



Item 1 Write/Write

Item 2 Display/Write

EXAMPLE
3 × 3 = 3 + 3 + 3



Item 3 Display/Write

Item 4 Write/Identify

EXAMPLE
8 × 11
2 × 11
6 × 12
4 × 12
3 × 13
7 × 11
3 × 12
8 × 12
4 × 11
2 × 14
4 × 3 = 12
2 × 7 = 14
4 × 5 = 20
2 × 9 = 18
6 × 4 = 24
4 × 4 = 16
5 × 3 = 15
A
B
C
D
E
F
G

Examine item 3. It shows a worksheet developed form the Display/Write format. One could easily exchange the positions of the pictures and the numerals to produce an activity sheet with a symbolic (write) input and a pictorial (identify) response. Each of the pictures could be changed (e.g., pumpkins to sailboats) and a new worksheet created. Such an approach would enable the child to practice and to generalize.

Algorithms

The algorithms or approaches used in schools and in school texts were developed as we moved more into paper-pencil arithmetic. No one has inferred that these approaches are more meaningful than others. The paper-pencil algorithms originally became popular because they are efficient and because they take up comparatively little space on paper. Schools contributed to their popularity because they fit nicely into the textbook, they are easily prepared (e.g., dittos can be cranked out quickly) and they are easily manageable (i.e., they can be handed out to the entire class in a few seconds).

But, the sole reliance on the traditional textbook algorithm seriously limits our ability to develop meanings, to demonstrate alternative approaches, to conduct appraisals and to assist individual children whose performance is highly unusual. It is ironic, that in the days of high-tech and the ever increasing popularity of hand-held calculators that we insist on the right-hand column as the sole beginning point when the calculator works from left-to-right (Pelligrino & Goldman, 1987).

It is important, therefore, that the teacher become familiar with a variety of algorithms, and be able to detect the subtle differences between what seems to be a strange approach on the part of the child and the use of a different algorithm. Our position is that instruction will be more efficient and learning more effective when the teacher utilizes a least correction model. That is, the teacher should correct only the error that is occurring and not the overall performance style of the child. Examine the two items below.

$$\begin{array}{r} 653 \\ \underline{+544} \\ 1200 \\ 90 \\ \underline{7} \\ 1297 \end{array} \qquad \begin{array}{r} \acute{6}5\acute{3} \\ \underline{-544} \\ \overset{0}{\cancel{1}}00 \\ \cancel{\overset{0}{1}0} \\ \underline{8} \\ 108 \end{array}$$

Note that in each instance the child worked from left-to-right and that in each instance the answer is incorrect. Our experience is that the teacher is likely to begin by informing the child that going from left-to-right is wrong and that he/she should begin on the right. But, where did the actual errors occur? Clearly, not in the use of the alternative algorithm. The errors were computational and it is in computation that the correction should made. Once the child has mastered the left-to-right algorithm and the arithmetic combinations, the teacher might then suggest that there are other approaches, one being right-to-left.

Approach Computation

In our introduction, we indicated that the primary reasons for computation are to provide the correct response to problems and to provide accurate data for dealing with real-life problems. The illustrations that follow (see Figure 6) are taken from a problem solving test that is presently under development (Cawley & Miller, in progress).

These illustrations focus on two conceptual schemes, clowns and animal trainers. The teacher can develop the needed background and vocabulary through language arts activities, visits to a circus or zoo or through films or other media. Developing the background is important for the more the children know about a topic, the less they will be burdened by extraneous concerns.

Figure 6

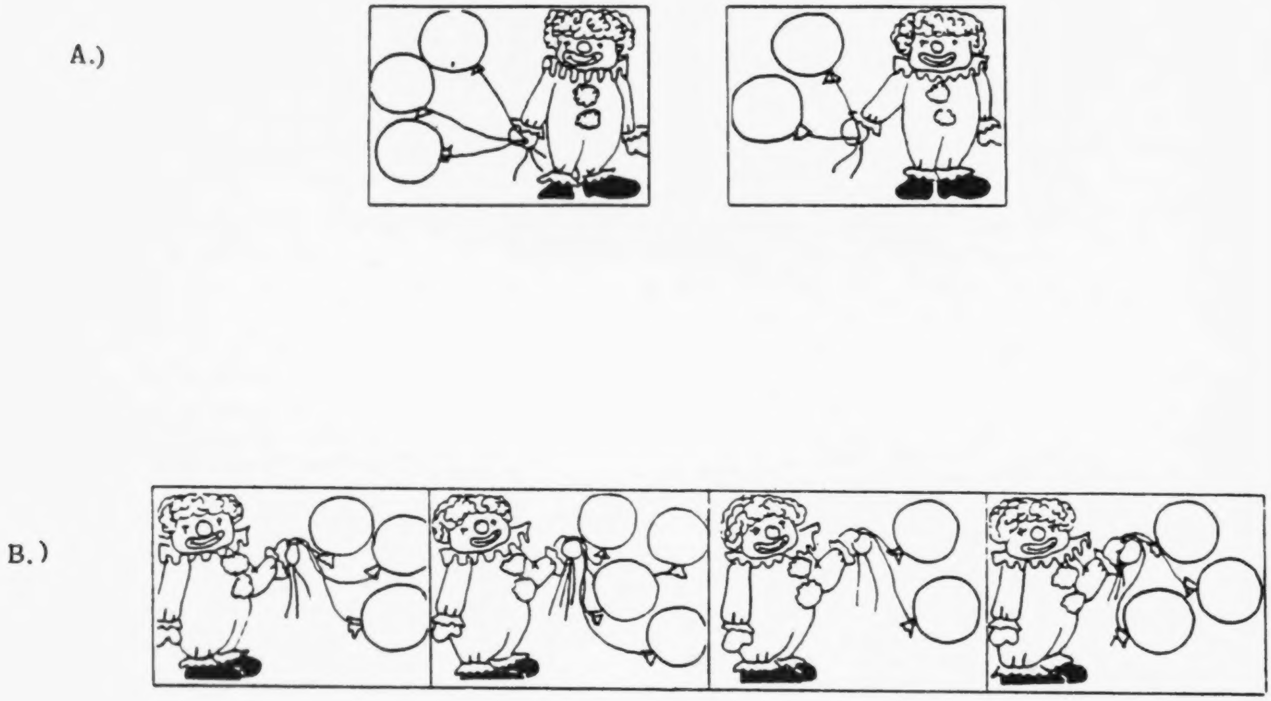


Figure 6A displays two pictures of clowns with balloons. The input is:

1. See the clowns.
2. Each clown has some balloons.
3. How many balloons do the clowns have in all?

The initial statement directs the attention of the child to the context. The second statement directs the attention of the child to the items that will be joined (i.e., added together). The third statement signals the joining action. Note carefully the use of the indefinite quantifier "some" in the second statement. Note also that no mention is made of the number of balloons each clown possesses. There are specific reasons for phrasing the statements in this manner. First, the use of the indefinite quantifier forces the child to utilize the pictures to identify the number of balloons possessed by each clown. Had the numbers been given, the child would not use the pictures. Second, the indefinite quantifier forces the child to count the objects and to utilize counting as the process for joining. Again, had the number been given the child would likely have searched 3 + 2 only to realize that he or she is unable to amalgamate them or does not remember these facts. Thus, with the indefinite quantifier the child can (must) meaningfully approach the process of addition without as yet having dealt with the so-called "facts." The same is true with Figure 6B, only this time the child is joining/adding 4 sets. The child is utilizing a form of the associative property of addition and it is now that the importance of our earlier concerns for "counting on" emerge. The teacher could vary the task to encourage counting on by first displaying one picture, then another and so forth.

We come now to the point where we must differentiate between the processes and understandings of addition, subtraction, multiplication and division as being different from the rote memorization and application of the traditional algorithm. To do so, it is important to group the operations and the proficiencies of the children with mental disabilities who perform them into selected stages. These stages are (a) single digit by single digit, (b) two digits by two digits and (c) three or more digits by combinations of one or more digits. Once they understand the operation, children can be helped to memorize the single digit combinations. But, memorization should not precede understanding.

Once they understand place value and renaming, children with mental disabilities can be introduced to operations with combinations of two digits. Proof of the levels of understandings should be determined via manipulative and pictorial representations and by their ability to perform two digit calculations with expanded notation. After they are able to perform two digit calculations at high rates of percent correct and at the fastest possible rates in time, the children can move to combinations with three or more digits by one or more digits.

Three digit by other combinations pose unique problems for the teacher and the child. In one of our companion studies (Magwili, in progress) it was found that only 15 percent of nonhandicapped children in the fifth grade and only 54 percent of nonhandicapped children in the eighth grade successfully answered:

$$46 \,/\, \overline{4060}$$

In another study among children with learning disabilities (Miller & Milam, in press) it was found that the majority of errors on problems of the above type were in subtraction and multiplication and not in division, per se.

Magwili (in progress) took the item shown above and broke it down into many of its component parts, Figure 7. Her data show that 85 percent of the fifth grade sample got the single digit item correct. Performance fell below the 50 percent level on the single digit divided into three digit example.

Figure 7

$4\overline{)4}$ $4\overline{)40}$ $4\overline{)38}$ $6\overline{)38}$ $4\overline{)4060}$ $6\overline{)40}$ $6\overline{)400}$

$4\overline{)380}$ $6\overline{)4060}$ $46\overline{)380}$ $6\overline{)380}$ $6\overline{)380}$ $46\overline{)406}$ $46\overline{)4060}$

One other recent study (Cawley, Miller & Watts, in progress) showed that only 30 percent of a sample of senior high school children with mental disabilities accurately performed division problems with two digit divisors. Clearly, the curriculum decision to emphasize "long division" via the traditional approach is questionable. An alternative is needed and that alternative exists as follows:

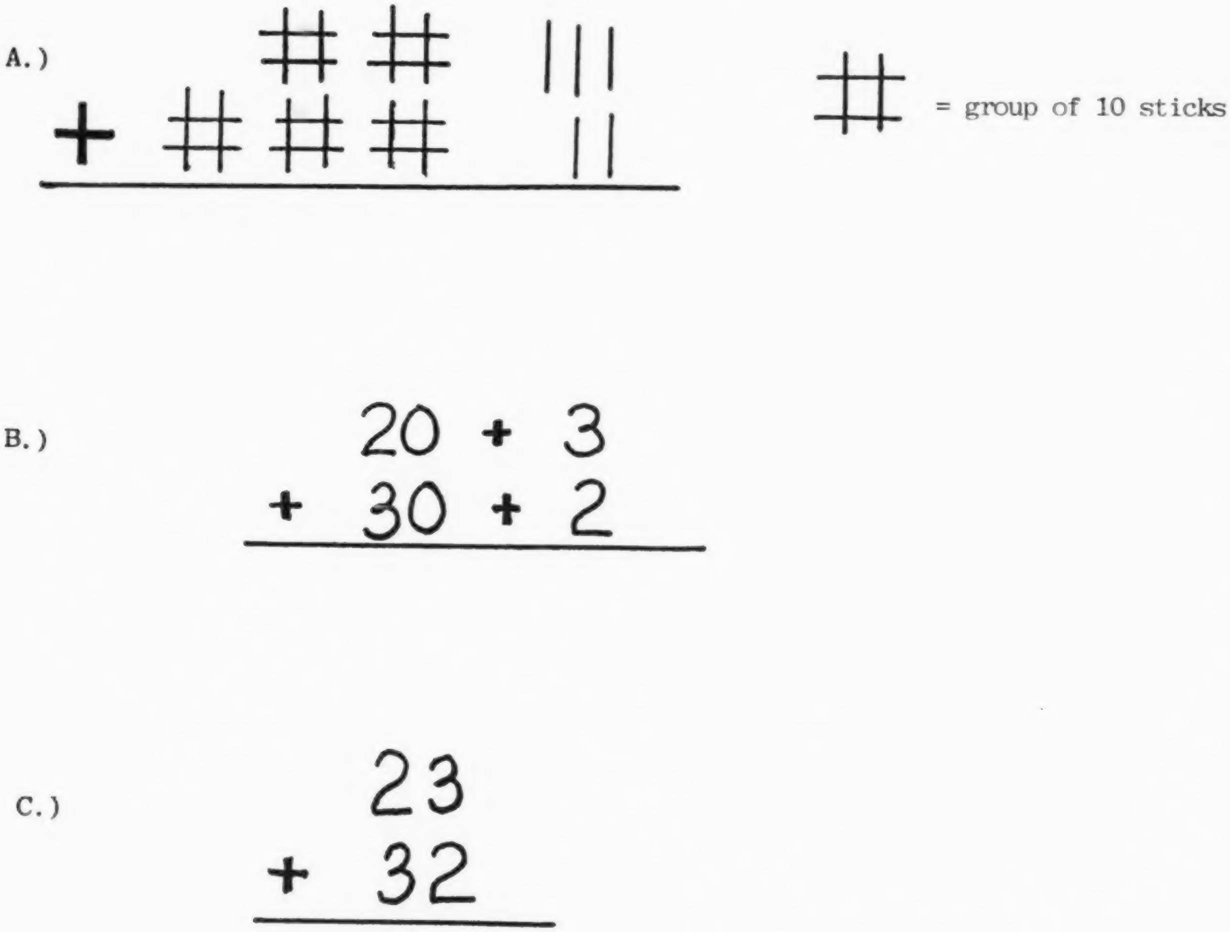
1. Develop a clear and precise understanding of each operation
2. Develop computational proficiency with two digit by two digit combinations through three digit by one digit combinations
3. Develop proficiency with estimation as a process and as a competency (Cawley, 1985)
4. Develop proficiency with the hand-held calculator
5. Minimize worksheet/ditto and paper-pencil activities
6. Make problem solving and situational computation the dominate school activity

Expanded Notation: The Last Step Before Computation

Counting beyond 9 involves regrouping when objects are used and renaming when symbols are used. Exchanges between columns in items with two or more places involve the same combinations. Figure 8 shows both a manipulative and a symbolic representation of two digit by two digit addition. The exchange that takes place between formats generally begins when the child has erred in the symbolic format. In this situation, the teacher will gather a set of materials and represent the item for the child. The child may even build the representation. Our experience suggests that the direct exchange between the manipulative and the traditional symbolic representation must be mediated by an intermediate activity, namely expanded notation. In effect, expanded notation is the format through which place value is expressed.

Expanded notation involves the numerical representation of each place value position. Thus, 23 becomes 20 + 3 and 265 becomes 200 + 60 + 5. In our illustration in Figure 8, the manipulative representation of 23 plus 32 would be shown as 20 + 3 plus 30 + 2 (Figure 8A). The symbolic representation in expanded notation is shown in Figure 8B, and the traditional symbolic representation is shown in Figure 8C. The inverse would take place if we began with the symbolic form.

Figure 8



What this does is provide a symbolic display of the manipulative form thereby helping the child to see more directly the relationship between the expanded format that exists with manipulatives and the traditional format with closed columns. These three components, the manipulative representation, expanded notation and the traditional closed column form, enable us to perform two important functions. First, they enable us to give proper meaning and understanding to the operations and skills that are so important to the child with mild mental disabilities. Second, they enable us to teach the operations in any sequence so that we can meet needs independent of the influence of prerequisite deficits (e.g., we can teach multiplication to a child who does not subtract).

Computation

As stated at the start of this chapter, we do not intend to provide a step-by-step manual of how to teach computation to mildly handicapped children. What we will do here at the conclusion of this work is to provide an example of how our theories and methods could be used in a class for these children. As we noted earlier, we have found that the traditional order in which computation is taught (e.g. addition, then subtraction, followed by multiplication, and finally division) is not at all necessary for students to understand and perform computations. We have been bound by tradition, and how we were taught when we ourselves were youngsters. It should be up to us as modern teachers to be willing to accept changes in time honored methods if these changes are for the good of our students. What we propose here is the teaching of multiplication, independent of the other operations of addition and subtraction. The reader should bear in mind however, that we did note that the basic concepts of counting and place value (expanded notation) must be mastered before any instruction beyond single digit computation is attempted.

For our example we will begin instruction in multiplication with the fact "4 x 3 = 12". We are not going to have the child memorize this fact, but will have the child understand this fact and generalize from this fact to all other multiplication facts. We will make extensive use of arrays in our lessons, and would begin as follows:

1. Present the child an array of manipulatives (beans, blocks, etc.) as shown:

   xxx xxx xxx xxx

   Have the child count the number of things in each set and the number of sets (here we are using the concept of equal sets). Say: "Make one like mine." Child copies arrays and recounts.

2. Rearrange your materials into the array shown below:

   xxx
   xxx
   xxx
   xxx

   Say: "Make one like mine." Child copies array and notes that there are 4 rows of 3, the same number as before the array was produced.

3. Reform your array as shown:

xxxx
xxxx
xxxx

Say: "Make one like mine." Child copies array and notes that there are now 3 rows of 4, and that the array is now turned sideways. The child notes that there are the same number or items regardless of the way they are presented. You have now presented the commutative property of multiplication (e.g. 3 x 4 is the equivalent of 4 x 3). This is an important step in the teaching of multiplication as once the child understands the commutative property, the number of facts that must ultimately be learned is almost cut in half. Have the child change the array several times to cement the concept.

4. You could now present the various permutations of the first fact, 4 x 3. Arrange an array as shown:

xxx   xxx
         xxx
         xxx

Say: "Make one like mine." Child copies array. Note that there are now two facts represented: 1 x 3 and 3 x 3. Stress the idea that there are still the same number of items in the array, but they are now in two sets. [You recognize this as the distributive property of multiplication.] Use "counting on" to demonstrate that 1 x 3 and 3 x 3 is the same as 4 x 3. You can divide the array into the other permutations, always demonstrating that no matter what formation is give, the items always represent 4 x 3.

Note: We recommend that the numerical representation of each expression be used starting at step four if not before. The numerical expression could be used throughout if desired, simply present the expression on a card which the child can view as he or she manipulates the items as instruction progresses. At all steps, the child could also supplement the manipulatives with paper and pencil representations of each array. The teacher simply says: "Draw it."

5. The next step is the presentation of multiplication "problems" rather than simple "facts". This occurs when numerals of 10 or more are used. For example, the problem:

$$\begin{array}{r} 13 \\ \times\ \underline{3} \end{array}$$

would become cumbersome if 3 rows of 13 ones were required. We have already noted that knowledge of place value and expanded notation is required prior to instruction in computation, and it is at this point in the multiplication instruction when this knowledge is required. The child must know that 13 is made up of one 10 and 3 ones. The "+" sign could be used here to indicate "and" rather than an operation, so the expression 10 + 3 = 13 does not presuppose any knowledge of addition on the part of the student.

It is good to use items such as popsicle sticks, etc. which can be bundled into groups of 10 for these problems. For the above problem, make an array as follows:

(# represents one bundle of 10)

#	xxx	10 + 3
#	xxx	10 + 3
#	xxx	10 + 3
		3 9

In order to solve this problem, the child counts the number of items in the ones column (9) and the number of bundles of 10 (3) and arrives at the correct answer (39).

6. Ah ha! You are now thinking, "What happens when there are more than 9 tens in the ones column?" Remember that the student is proficient in expanded notation and place value. When presented with the problem:

$$\begin{array}{r} 13 \\ \times\ 4 \end{array}$$

the student would form an array as shown.

#	xxx	10 + 3
#	xxx	10 + 3
#	xxx	10 + 3
#	xxx	10 + 3

The child counts the number of items in the ones column and when 10 is reached, he or she automatically "bundles" the ten, places it with the other bundles of ten, and continues counting the remaining ones (2). The student then counts the number of bundles in the 10's columns and notes that there are 5, thus arriving at the correct answer of 52.

#		10
#	xx	10 + 2
#		10
#		10
#		10
		5 2

7. The teacher could continue to provide manipulatives indefinitely as the child works multiplication problems. However, the student understands the concept of multiplication and is able to perform the operation which is what the instruction is all about in the first place. At this point, we recommend that the teacher provide the students with a hand-held calculator.

The above example demonstrates clearly how the operations used in mathematics could be taught independent of each other. Basically the same steps could be used for either of the other three operations in mathematics.

SUMMARY

All too frequently, we find ourselves caught in the web spun by our predecessors in teaching only to find that we are reluctant to change our views and methods. It was our aim in this work to offer alternatives to traditional methods and to alert practitioners to the dangers of stagnation in mathematics teaching.

We must be aware that students are able to learn mathematics in alternative ways. We must also be able to accept these alternatives when offered. It is our hope that this work will provide a thought provoking stimulus for action on the part of those who teach mathematics to the mildly handicapped.

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Chapter Eight

Art

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OVERVIEW

Students with mental disabilities, as all children, need art experiences to help them grow as a part of their academic learning. They also need situations for practicing appropriate social skills as can occur in a regular art class. Art teachers are seeking guidance in developing appropriate methods for working with these students and want to gain understanding of any special needs that may be present either individually or collectively. At the same time, special educators are also interested in how art education can serve the needs of their students in the most effective manner. Administrators are working with all educators in providing integration for students with mental disabilities. Visual art is often selected as a subject which can facilitate this process.

Two major concerns will be addressed in this chapter. First, how can the regular art teacher, through the art curriculum, effectively serve students with mental disabilities. Secondly, how can administrators direct and guide their districts regarding integrated situations in the area of art education.

BASIC CONSIDERATIONS

P.L. 94-142 mandates each state to adopt a policy that makes a free, appropriate public education available to all handicapped children in the least restrictive environment. Specific types of programs have been established to provide special education students with a least restrictive environment in the general education setting which may or may not include art programming. When art instruction does take place it may be through integrating the student into a regular art class or a special art class in a self-contained classroom. Curriculum for the students in a self-contained setting may be the same curriculum developed for the regular population or may be a special curriculum designed for the population with mental disabilities. In view of the law, it is up to administrators, special and art educators to evaluate their students and decide whether the goal is to provide art education in an integrated or segregated setting.

Art for Students in a Regular Art Class

If art is offered as an integrated class, it is desirable to have agreement from the art and special education teachers about the goals of the art class for these students. Art is an academic subject with a particular body of knowledge and skills to be taught. Curricula are based on cognitive and developmental needs of the students. Lesson objectives are identified and students are expected to meet certain performance level standards.

Students with mental disabilities should be able to follow the same basic curriculum, if integrated into the class for academic purposes. Some adjustments, agreed upon by the art and special education teacher, may be necessary. These may include (a) lowering or adjusting the finished goals (such as requiring fewer steps to completion), (b) providing a support student or aide to insure continuous encouragement, (c) assistance from the special education teacher (in the resource or special classroom) in explaining the instructions, (d) providing previously prepared sequential instructions which are written on separate cards and may be kept by the student at his or her own desk, or (e) a reward system.

The art teacher will be interested in any information and support the special education teacher can provide. It is a sad reality that at times regular art teachers have only been told "Johnny is coming Monday. Call me if you need help." This process must stop. It is not fair to the regular art instructor to "dump" a student without time for adequate preparation. A brief form with pertinent information from the student's Individual Education Plan would be a suggestion (see Figure 1). This would enable the art teacher to have necessary information without reading the whole IEP. This is a consideration since most art teachers have a large student number to consider and it would be difficult to read every IEP. If, after reviewing IEP information additional support methods or materials are considered to be needed by both teachers, the art teacher would appreciate the assistance of the special educator in providing these materials.

Art may be offered as a social interaction activity in some situations which means the academic or curriculum goals may no longer be pertinent. If social interaction is the purpose the art class would become an opportunity for the student to concentrate on appropriate social behaviors in an art class setting. The media being used should be the same as the rest of the class while, again, the goals for completion may be adjusted and other support systems put in place. In these situations, the special education teacher should have a goal for the student in this area. Since there are no academic expectations, the special education teacher is responsible for monitoring the student.

It is important that the art teacher have the opportunity for involvement in the staffing conference and input to the student's academic, social and behavioral goals. This sometimes must be accomplished between the two teachers prior to a staffing because of scheduling problems.

Art for Students in Self-Contained Special Education Class

If art education is offered in this setting, the art teacher, with input from the special educator, should plan a curriculum which meets the student's academic, behavioral and social skill goals. The curriculum may be a series of lesson plans which are age appropriate, which have been used in another classroom setting, and which address the goals of these students. Whenever possible, if art education is provided in a special classroom both teachers should be looking for ways to integrate this experience into the rest of the school setting, (i.e. art exhibits, sets and props for music or drama experiences, bulletin boards, all school activities, and coordination with other academic subjects).

Rationale for Art Education for Students with Mental Disabilities

It is important to reflect on the reasons that art education is a necessary component in education of students with mental disabilities. In 1980, the National Committee Arts for the Handicapped (currently Very Special Arts) reports on the Senate Bill Report #94-168, which states:

Figure 1

SAMPLE
INDIVIDUAL EDUCATION PLAN OVERVIEW

NAME____________________ D.O.B._____ GRADE_______

PARENT____________________ PHONE______ ED WEIGHT_____

HOMEROOM TEACHER________________ CLASSIFICATION___________

Current Testing Test(s) Date(s) Score	Current Program
Student Strengths	Student Weaknesses
Important Long & Short Term Goals Academic	Important Long & Short Term Goals Behavioral
Important Long & Short Term Goals Social Skills	Staff Relations
Peer Relations	Other

Signed ________________

Date ________________

> The use of the arts as a teaching tool for the handicapped has long been recognized as a viable, effective way, not only of teaching special skills, but also of reaching youngsters who had otherwise been limited. The committee envisions the program under this bill could well include an arts component, and indeed, urges the local education agencies to include arts in programs to be funded under this act. Such a program could cover both appreciation of the arts by the handicapped youngsters and the utilization of the arts as a teaching tool per se.

Engel (1983) states "The arts are cognitive/intellectual/mental disciplines and artists make symbols and meaningful markings in order to communicate meaning." Therefore, as students participate in art activities their learning process may be affected positively. Another researcher (Rafael, 1981) supports this theory by reporting that visual art activities act as a change agent in stimulating minds and imaginations. The art program may offer children, with varying degrees of problems, the first awareness of self.

Students who learn atypically can be effected by a strong art program. Miller and Miller (1982) found that students with mental disabilities are capable of performing complex art tasks that are more difficult than those currently assigned by art teachers. This may be because many art teachers are unsure of the expectations they may have for students with mental disabilities and, as a result, they may underestimate the capabilities of the students. The art program can help the student in every subject through teaching visual literacy in the art program. Art is an important vehicle to begin developing the whole brain. McKim (1980) states the left hemisphere of the brain controls verbal reasoning and mathematical description and the right hemisphere controls the process of feelings and imagination. It is important for students to use both sides of the brain and the visual art program will help the student develop visual literacy, thinking in mental images (right side) to complement thinking in words and numbers (left side). School systems are often focused on left brain activities but some students can learn better using a strong right brain approach.

BEST PRACTICES

An art education program can be an integral part of educating children who may be experiencing learning problems. After reviewing the possible purposes and rationale for providing art education for students with mental disabilities one or all of the following strategies may be appropriate for a student in an integrated or self-contained art class.

Strategy I
Art for the Development of Functional Skills for the Mentally Disabled

A growing number of special educators agree that the educational services for students with mental disabilities should relate to their day-to-day functioning in non-classroom environments. This orientation can be applied to art programming. Functional skills, as suggested by Reid, et al. (1985), which could be related to an art curriculum are:

1. Leisure domain: an activity skill that would be likely to occur among non-handicapped populations of the same age group as the student during leisure time.
   Example: Students often like to make posters for their room or special activities. This is a project that may be accomplished by have the following materials available-11" x 14" paper or poster board, ruler, pencil, and magic markers.

2. Vocational domain: a skill that is part of a vocational task that, once mastered, would be a skill for which the student could be paid.
   Example: Create wooden placques or wood sculptures by learning to sand pieces of wood or parts of wooden designs which would then be assembled into saleable items. They could learn to stain, stencil, or paint the pieces.

3. Communication/Social domain: an action, using materials which could be part of an interpersonal interaction that the student would perform at least once weekly outside of the classroom.
   Example: Sharing materials in an art activity is the same principle as in a social situation of eating a meal together and passing, the food, salt, pepper or waiting a turn to be served.

4. Community living domain: a skill that is part of an activity that would be likely to occur among a non-handicapped population of the same age group in a community setting.
   Example: Cleaning up after an art activity and taking responsibility for one's own materials and helping others put things away is likely to occur with nonhandicapped peers in any group setting such as library, lunchroom, classroom, swimming pool, or gymnasium)

5. Domestic/Self-Help domain: an action that would be performed by someone for the student if the student did not perform the task for himself/herself.
   Example: Washing hands, brushes, and paint pans is an example of what one must do to take care of ones self.

A specific art curriculum could be developed to promote functional skills for the student with mental disabilities in these areas. The activities used to implement the curriculum should be age appropriate for both the actual age of the student and the mental age. All of the areas, leisure, vocational, communication/social, community living and domestic/self-help, suggest an art connection and imply that visual arts could make them more complete. They also have links to the other practices for art education for students with mental disabilities.

Strategy II
Art for the Development of a Positive Self-Concept

One of the major outcomes of art education for any student is the development of a positive self-concept. The act of creating establishes a feeling of self-worth. The feeling of "I made something" confirms the importance of the self. The self-concept is established in both the process and the products of art. At the basic level of the process is the cause and effect relationship. Higher order thinking skills utilized by the regular student in the process of making art have an additional impact on the self-concept, and to some degree will also impact the students with disabilities.

The pride in the finished product is also important in the development of a positive self-concept. Displays of student work serve to reinforce this, as long as the student feels good about what he or she has made. Very Special Arts Festivals, stressing integrated art experiences have done a great deal to promote students in special education taking pride in their artistic abilities.

The development of a positive self-concept is important to every individual. Art education helps to promote the self, no matter what the ability level. With this as a rationale of art for students with mental disabilities, curriculum specifically focused toward the process and product of art is appropriate and necessary. Curricular emphasis will be placed on cause-and-effect relationships, such as a wet brush makes a smooth appearing surface and a dry brush creates a rough textured looking surface. Finished products and exhibits are also necessary for the development of a positive self-concept.

Strategy III

Art for Development of Spatial Intelligence

McKim, in Experiences in Visual Thinking (1985), makes a strong point for the importance of spatial intelligence (understanding the relationship between objects in space) and visual language (seeing, imagining and drawing or diagraming) as abilities needed to function in our complex society. Spatial intelligence impacts how we perform everyday tasks, how we get from one place to another and how we relate to our environment. Much of the information we get from our environment is in a visual symbol language, so we have a basic need to understand that language. Understanding visual language is becoming an increasingly more important survival skill.

All of us need training in spatial intelligence and visual language. This may be especially important for students with mental disabilities. Art programming that has a major goal of spatial intelligence would be of special importance to students with mental disabilities.

Activities and discussions that promote spatial intelligence will focus on:

1. positive reinforcement of extending visual attention span;
2. identifying shapes in the environment;
3. identifying shapes and color in art works;
4. identifying visual similarities and differences;
5. identifying symbols and determining why the shape and color help the viewer to know what the symbol stands for;
6. determining how objects appear to change in size as they move away from the viewer;

7. recognizing that shapes can be separate, touching, overlapping and interlocked; and

8. identifying repeating patterns of shapes and colors.

Strategy IV
Art as a Leisure Time Activity and for Aesthetic Value

Practice in viewing art work may encourage students with mental disabilities to use viewing and appreciating art as a leisure time activity. Taking students to places where they can view art is also learning to use art as a leisure time activity. Trips to the art museum or art fairs should be a part of the curriculum. Students will learn to behave appropriately as they participate in using art materials for a leisure time activity. Students should become involved in the total processes of projects. Although limited time is a problem, it is important to involve students in the preparation and the clean up of materials and space. This experience will teach them how to choose an activity and how to proceed independently as they would be expected to do in a leisure activity. The art materials selected should be ones that are readily available, safe, and easy to use so they may be used in an unsupervised setting. Making art a leisure activity adds a valuable strategy to the art curriculum.

While students, through viewing art works, learn to make choices students also learn to judge and select colors, shapes, sizes, textures, order, and to make pleasing combinations. Providing the opportunity for students to make decisions helps the students in several ways. Students learn to make judgements based on what they like; they gain confidence in their ability to make decisions by having experiences in a non-threatening situation and they become more in touch with their environment. All of these are important qualities for the students with mental disabilities.

SUGGESTED GOALS FOR AN ART EDUCATION PROGRAM FOR STUDENTS WITH MENTAL DISABILITIES

1. To improve self-esteem, each student will:

    a. successfully complete art projects.
    b. practice successful decision making.
    c. successfully follow directions.
    d. display their individual art work.

2. To improve visual thinking skills, each student will:

    a. exercise the visual thinking process (right brain) by doing projects using guided imagery (e.g. imagining themselves as an adult in a career and then painting that image).
    b. improve right and left brain function through using cognitive skill. (visual perception, auditory perception, verbal communications, and visual communication).

3. To increase large and small motor coordination, the student will:

    a. practice using tools which involve fine motor and large motor skills (large and small brushes, brayers, scissors pencils and rollers).

   - b. practice large motor skills through gross arms and muscle movement. (arm movements used in art work)

4. To improve free emotional expression, the students will:
   - a. be provided an outlet to express their feelings such as releasing anger, through using art materials.
   - b. express their feelings through drawing, painting, or modeling with clay.

5. To use and develop leisure time activities and aesthetic values the student will:
   - a. visit art museums and exhibits.
   - b. observe space aesthetically.
   - c. become familiar with books and art reproductions.
   - d. use color, shapes and lines in everyday life (dress and environment).

PLANNING STRATEGIES FOR A MAINSTREAMED OR INTEGRATED ART CURRICULUM

Successful strategies would include the following steps:

1. Identify which program the student has been staffed into and communicate that information to all teachers working with the student. This initial communication should also include basic information about the students disability (see Figure 1).

2. Class size should be a consideration if integration is to be a positive situation for the student. When art classes are elective, spaces could be reserved for the special population students. Class size, student-teacher ratio, and the possible barriers should be considered when planning for success in integration.

3. The physical set-up of an art room and necessary equipment needs to be appropriate for all students.

4. Grading policies should be appropriate for each individual student. In some cases the grading system utilized for the regular student is appropriate for those in special education. However, in some situations grades should not be considered, or necessary accomodations should be made (relaxed criteria, shortened assigments, etc.)

5. Inservice workshops could be provided for special education and art teachers. The art teachers may need help with strategies of instruction for students with mental disabilities, and the special education teachers could benefit by gaining information about the rationale and methods of using visual arts in connection with academic and social skill studies.

6. The administration could support integration by approving professional leave for special education and art teachers to work together; supporting in-service workshops for special education and art teachers; establishing appropriate size classes; supporting appropriate grading practices;

assigning sufficient staff for aides to accompany students with disabilities, when necessary, in the art class; and providing funding for adaptive equipment. The administration could take a leadership role in the development of a plan for integration, and actively pursue improved communications between those individuals working for the well-being of the students with mental disabilities.

SUMMARY

Art education for students with mental disabilities is an important area of concern for art and special educators and administrators. Educators are concerned with providing the most effective art education for these students. Art educators want to succeed in providing an appropriate art curriculum for the integrated or self-contained setting. As school districts are implementing the concepts of least restrictiveness, the art and special educators need support from administrators and support staff personnel in making a realistic plan that best suits the students, parents, teachers, and schools. This may require an in-depth, unified review of a school district and school buildings plan for integration. The strategies reviewed here and the steps suggested could be a helpful beginning for an exciting art education program for students with mental disabilities.

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Chapter Nine

Career Development

Pamela K. Gillet

OVERVIEW

Career development may be defined as a constellation of accepting responsibility, developing positive attitudes toward work activities and experiences which lead to positive work habits, familiarity with the role of a worker, exposure to functional living activities, and a general understanding of the meaning of work and leisure in life. Career behavior is developmental and begins early in childhood. The behavior develops from less complex and less affective to more complex and more affective, from fantasy to reality, and from general to specific knowledge.

It is often thought that an educational program of career development needs only to focus on obtaining and maintaining a job in competitive employment for the student. This type of approach limits the focus of career development and discourages programming that emphasizes the need to develop functional skills necessary for daily life activities and the interrelationship of work to self, family, and the community. For the student with mental disabilities, an integrated approach to career development is more appropriate than teaching job skills apart from other aspects of the curriculum. Therefore, the career development program should provide training of specific skills needed in particular jobs as well as a general orientation to the world of work. Relating academics to activities of daily living--competitive buying, banking, budgeting, completing forms, etc.--is also considered to be an important part of career development.

A career development program for students with mental disabilities should begin at the elementary level with emphasis on the meaning of the world of work and the development of social competencies. As the student progresses through junior high and high school, emphasis shifts to the realistic requirements of jobs that form the basis for the evolution of work habits necessary to enter and remain part of the working community. Emphasis is also placed on the development of personal adequacy, the use of specific skills necessary for decision making, the opportunity to participate in an actual work environment with meaningful on-the-job supervision, and eventually to occupational choice. Career development leads to an awareness of the concept of work, the application of functional academic skills, and social skill acquisition.

To ensure that a career development program is integrated into the total special education curriculum, this broader based conceptual approach to career development must be used. In order for students with mental disabilities to gain career concepts with resultant behavior changes, a developmental approach to the curriculum is necessary. In this manner, career development concepts do not become "add ons" to the special education curriculum, but are infused into the existing program, resulting in a more functional approach to the curriculum for students with mental disabilities. The goal of assisting students to formulate realistic self-concepts, to apply basic academic skills to daily living activities, to develop positive attitudes about work, and to eventually prepare to enter some type of work activity cannot be achieved by infrequent, randomly selected career development activities.

Generally, career development programs are based on various conceptual stages of career development. The stages are developmental, progress from concrete to more abstract, and are comprehensive in the coverage of needed skills and habits. The stages of career development experienced by an individual are influenced by many factors. The student's knowledge of general career information, familiarity with various jobs, levels of cognition, adaptive behavior skills, functional skill acquisition, self-concept, decision making ability and parent's attitudes about work will affect how the student approaches and progresses through each stage of career development.

The use of the term career development connotes a developmental progression of skills through a variety of experiences. "Developmental" relates to the scope and sequence of the curriculum offered and to changes across the age span, as well. In this developmental frame of reference, it is essential that career development begins at the elementary level with young children, that the program be continuous at each level, and that each level of learning builds on the preceding experiences.

If the basic orientation to the work world is provided to the younger child, the high school program can become even more individualized and indepth. Therefore, the high school program needs to expand its orientation as well. Consideration must be given to providing a variety of job training experiences in the work study program versus the provision of only one type of work setting and training methodology. In school work programs, work teams, industry based programs, job coach alternatives, and transitional labs should be explored as options for on the job training. These options can provide both for generalized work habit development as well as specific job skill training.

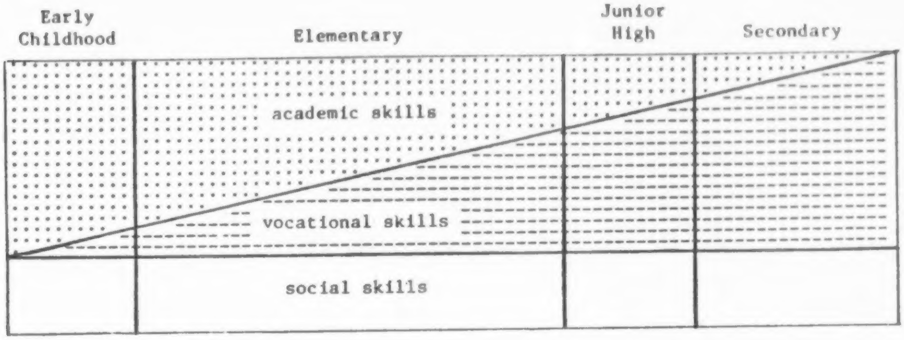
BASIC CONSIDERATIONS

A career development program for students with mental disabilities must encompass more than training for work. The curriculum and teaching activities selected must view career development as an expansion of Hoyt's (1975) original definition of career education as being "a totality of experiences through which one learns about and prepares to engage in work. . ." For students with mental disabilities, the totality of experiences includes preparation to be a knowledgeable consumer, a participating family member, a responsible citizen, and a productive worker. Therefore, the entire curriculum can be used to develop career concepts, to teach academics in a functional manner, and to use other subjects to support and reinforce the skills necessary to facilitate the students' growth in vocational, social, personal, and cognitive domains. This broader interpretation implies a redirection in curricular emphasis for students with mental disabilities so that a balance is achieved between vocational, academic, and social skill development.

A key aspect of career development is the necessity to begin at the early elementary level. In order to incorporate the developmental aspects of career education, use the interest of the young child in the adult world, and capitalize on the young child's willingness to experiment with various choices, it is essential the program begin at the elementary level. Basic values and attitudes toward work begin to develop in early childhood. As the children's visions broaden from home to neighborhood and to the community, they begin perceiving and adding meaning to workers and jobs in their environment. Soon they begin to explore and see themselves in relation to that broader world. An occupational dimension begins to be added to the questions "Who am I?" "What am I like?" "What will I be?" Eventually simple awareness of the world of work must give way to hands on exploration, exploration then gives way to decision making, and decision making to specific community based preparation.

The elementary career development program must serve to motivate the student's interest in school and academic learning. If curricular activities are related to careers and the functions of adult life, the student will better perceive the relevance of current school subjects to the future. Units of instruction should begin in the primary classes and extend throughout the special education program through the secondary level. As the career development program designed for students with mental disabilities progresses, it can be schematically plotted (see Figure 1).

Figure 1



In the early years of a career development program, there is more emphasis on academics and later, career and vocational skills dominate The personal-social skills are stressed throughout the program. To ensure that career development is considered important to the growth of a student with mental disabilities, it should be a required component of the curriculum, and specific goals and objectives for career development should be prepared for inclusion in the student's individualized education program.

Another reason for beginning career instruction at the elementary levels is due to the developmental nature of this curricular area. Career development moves from general knowledge to specific and from fantasy to realism. An early developmental state of career education has the child engaging in fantasy, role playing, and in making tentative career choices. Fantasizing, role playing, and hands-on exploration are all activities suitable to an elementary student's introduction to career concepts.

It is generally advocated that career development be viewed in stages. Career developmental stages have been proposed by several career education specialists. While various labels and age levels have been attached to these stages of career development, most approaches use career awareness for the elementary stage, career exploration for junior high, and career preparation for high school. Even though these stages have not been specifically designed for students with mental disabilities, general knowledge of the theories should enhance the teacher's ability to plan sequential learning experiences. It must also be understood that these stages are directly influenced by the provision of learning experiences, social influences, maturation,and by the child's interests, academic and social abilities, and contacts with adult models,

The stages of career development may be summarized by:

1. Child understands himself/herself in terms of daily activities.

2. Child develops broad concepts of the differences between work and play.

3. Child relates some of the activities being done now to the future.

4. Child compares the goods and services to the worker roles involved with them.

5. Child focuses on self-understanding, how I'm alike and different from others.

6. Child becomes familiar with the concept of job families.

7. Student begins to become involved in formulating some decisions about career choices.

8. Student uses academics in functional living activities.

9. Student begins to understand how attitude has an effect on performance.

10. Student explores reasons for working.

11. Student realizes the importance of training for jobs and for independent living skills.

12. Student views parenting as a career.

13. Student regards his/her own strengths and limitations when considering job choices.

14. Student generalizes skills across a variety of environments.

15. Student acquires his/her own identify as a worker, family member, consumer, and citizen.

A developmental approach implies that the concepts and attitudes acquired during the initial stages of development are integrated with those concepts and attitudes that come with the next stages. The development of each of the succeeding concepts continues in this manner, modifying and changing what has been acquired with earlier concepts. The introduction of each new concept involves meeting and coping with increasingly complex tasks. Career concepts progress from self-understanding to understanding the work roles of others, from a study of academics to their application, from jobs in the home and school to jobs in the community. With ongoing emphasis in the curriculum, the information gained through introductory career development activities takes on meaning and influences career perceptions. Through further expansion of learning experiences, these perceptions begin to become generalizations that have practical applicability. Figure 2 shows how basic career concepts and activities apply to the stages of career development (awareness, exploration, and preparation) and to the level of grouping in the special education program.

A functional, hands-on approach must be the focus to the delivery of the career development component of the special education curriculum. Doing rather than merely listening and observing is the key. Using actual forms, reading current newspapers, and checking a real bus schedule is a better methodological approach than using duplicated forms, prepared workbooks about newspapers, or a teacher made bus schedule.

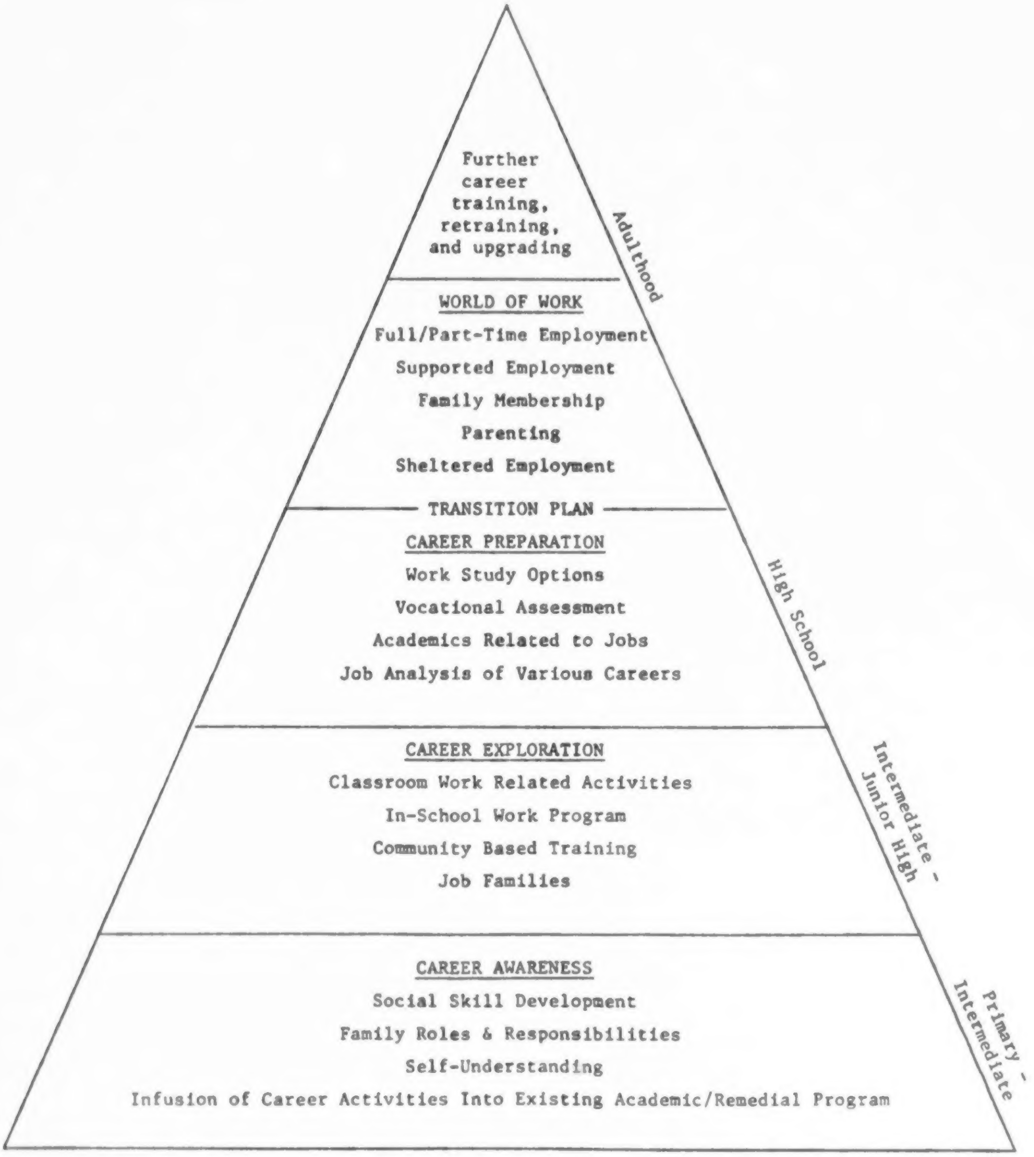
Another basic consideration when organizing a career development program is to ensure that teaching is taken outside the four walls of the classroom and into the community. Ordering a meal, figuring the amount of money needed, checking the change received, practicing appropriate communication skills, and exhibiting correct social behavior in an actual community restaurant promotes transfer of learning of the necessary adult skills more than generating the correct answer in a class discussion, writing the correct response on a worksheet, or even participating in a role play situation. Classroom instructional strategies may certainly continue to be used as precursors for the actual environmental learning situation. However, the community must also be used as a teaching environment for career development. There skills are practiced and validated and generalized across environments and persons.

As the student is introduced to various types of work at the junior high and high school levels, best practice dictates the importance of emphasizing all types of jobs in a career awareness unit, not just the usual study of community helpers. Excluding unskilled and semi-skilled job descriptions from the discussion says to the child "these really aren't worth mentioning, they're not important. Anyone can do them." In this case, actions do speak louder than words. Respect, dignity, and importance must be attached to semi-skilled and unskilled jobs. Then, when job placements in these types of employment are found for students for work study experiences, the high school program is not faced with a student who remembers the job as being unimportant. The instructional message should be that ALL work is important.

To help foster this concept, past program graduates should be invited to return to act as resource workers to the class. When other guests are scheduled for career days or resource speaker time, make sure that workers holding a variety of jobs are invited and those having lesser skilled jobs are treated equally to skilled and professional employees.

If the resource person approach is used, emphasis should be placed on the worker, not just the job. Children should be trained to ask questions of the resource person, a prerequisite skill to the actual job interview process. Questions can include likes and dislikes of the worker about the job, types of leisure activities used, etc. The experience can be more meaningful to the students if the worker dresses in work clothes and actually uses tools or shows the product that is made on the job. Vocabulary terms such as service," "product," and "consumer" can be introduced at natural times during the resource person's presentation.

Figure 2



Further career training, retraining, and upgrading
Adulthood
WORLD OF WORK
Full/Part-Time Employment
Supported Employment
Family Membership
Parenting
Sheltered Employment
TRANSITION PLAN
CAREER PREPARATION
Work Study Options
Vocational Assessment
Academics Related to Jobs
Job Analysis of Various Careers
High School
CAREER EXPLORATION
Classroom Work Related Activities
In-School Work Program
Community Based Training
Job Families
Intermediate - Junior High
CAREER AWARENESS
Social Skill Development
Family Roles & Responsibilities
Self-Understanding
Infusion of Career Activities Into Existing Academic/Remedial Program
Primary - Intermediate

Another tenet of career development is based in the importance of all work, and also the pay structure of employment. Success should not be measured solely as securing a full-time job at competitive rate, but by individual accomplishments within a variety of work options. A full-time job, a part-time job, supported employment, or unpaid work of a volunteer nature are all acceptable job options.

These basic considerations are helpful in determining the specific components to be included in a career development program at the various educational levels as well as the instructional approaches to be used.

BEST PRACTICES

The means by which career development is included in the curriculum depends on the developmental stages of the student, the type of special education program, the prerequisite skills possessed by the students, goals and objectives of the IEPs, and the teacher's philosophy toward career development. Following are some recommended practices for providing career development at the elementary, junior high, and high school levels. Consideration is also given to providing career development to students with mental disabilities in differing special education placements (e.g., resource program, self-contained classroom).

Elementary

The elementary years are vital ones in the development of concepts for children with mental disabilities. During these years, attitudes are being formed that will affect vocational activity in later life. The child's education and training for adult living should begin early and continue throughout the school years and not be postponed until adolescence. It is very difficult, and in some cases impossible, to negate years of inappropriate behavior patterns when secondary school age is reached.

Character training at the elementary level is not only important to social development, but it is also related to future job skills. Employers desire employees who exhibit dependability, initiative, reliability, perseverance, and cheerfulness. Repeated studies show that more employees lose their jobs due to poor character traits than to lack of skill. Therefore, emphasis on personality development is important to career development. Training in this area must begin in the elementary program.

Career development at the elementary level consists primarily of guiding the evolution of social skills necessary for job, family, and personal adjustment, helping the child come to an understanding of self, encouraging the development of basic communication and comprehension skills, introducing the general idea of the world of work, and facilitating the exploration of a variety of careers. At this level, vocational growth is undeniably dependent upon many of the common academic skill areas that are developed during the elementary years. Knowledge of the calendar, time concepts, money, shape and color recognition, quantitative concepts, mastery of a basic written and spoken vocabulary, and skill in communication are all essential to success in adult life. Therefore, career development does not replace an academic program, nor does it call for a separate curricular structure.

Job Family Approach

A basic approach used at the elementary level for career development is the study of job families. Through the job family concept, careers are classified into logically related groups based on similar skills and characteristics. The jobs in each family include identical or similar teachable skills and knowledge requirements for employability. The implication is that a study centered upon the knowledge and skills common to the jobs comprising a family should prepare the students for entering the group of occupations rather than only one specific job. The family based approach offers advantages for the student with mental disabilities:

1. A family approach prepares the learner for a group of related occupations, thus ensuring some mobility among jobs within the family.
2. A curriculum based on the family concept has more relevance for learners interested in not just one, but a variety of occupations.
3. When students are involved in studying common job skills, such as measuring or reading charts, the relationships between occupational skills and academic instruction in math or reading become meaningful.
4. The study of families of occupations provides a basis for a number of facets of the world of work, the social, managerial, and other human relations aspects of work.
5. The family approach provides an opportunity for studying similarities and differences between jobs and making generalizations regarding work.

Activities emphasizing the relationship in job families can be made very concrete and visual (Figure 3). The study of job families can change orientation, and instead of focusing on a job family, a product or service can represent the family. The study of each family would introduce the child to various possible jobs that deal with that product or service.

Another alternative centers the family approach around jobs found in a particular environment (see Figure 4).

Learning about related jobs permits flexibility in planning career choices. Through directed study, the child will be able to see within an area of interest that there are many jobs that he or she can do and others that he or she cannot do. Yet, all the jobs are within the student's interest area. By looking at various jobs through this approach, the student who wants to be a nurse and may not have the necessary skills will be able to see that a nurse's aid performs many duties similar to a registered nurse.

Junior High

The junior high school special education program for students with mental disabilities should continue to offer a career development component, building on the program initiated at the elementary level. The program should have as its focus:

Figure 3

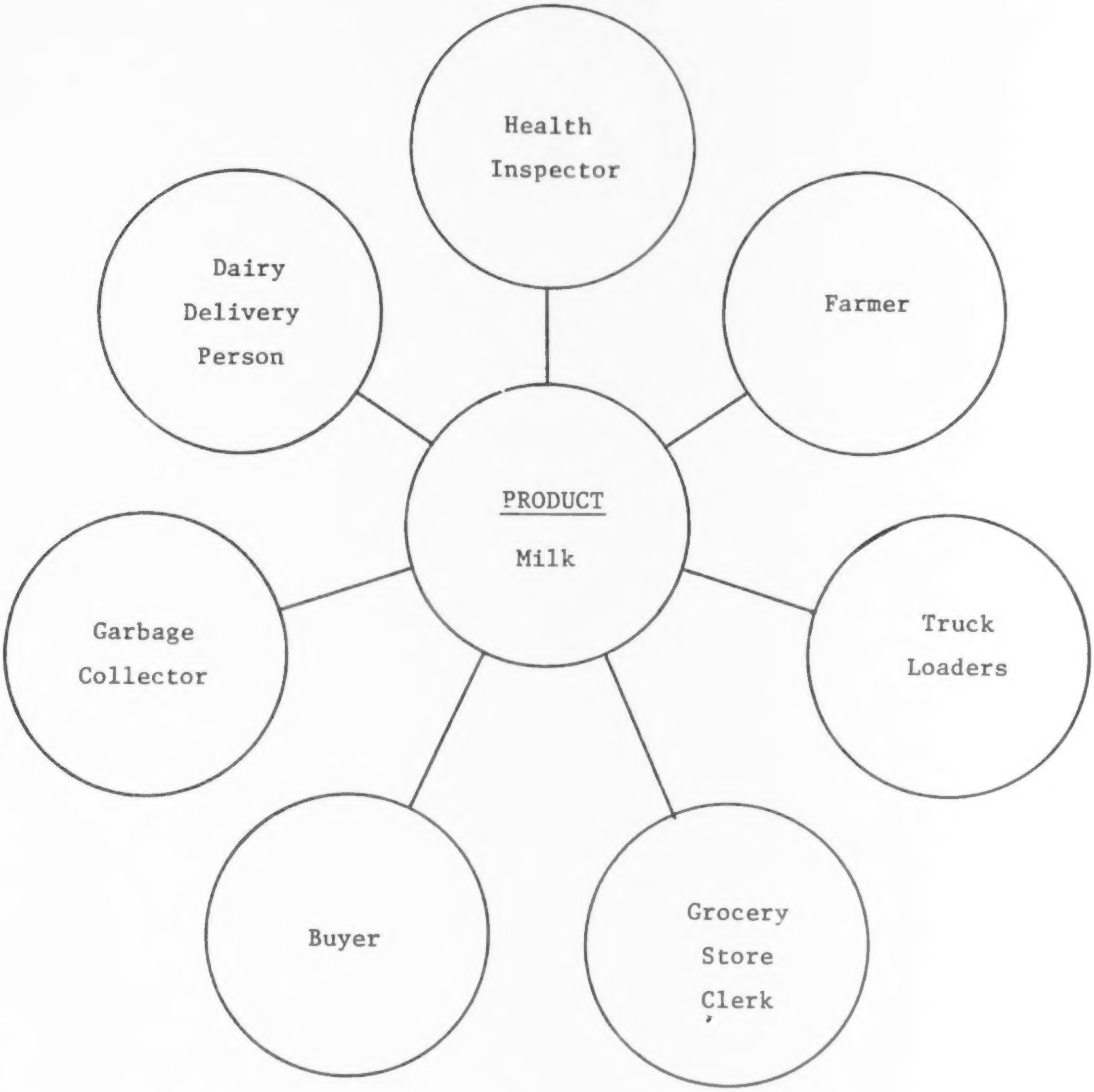
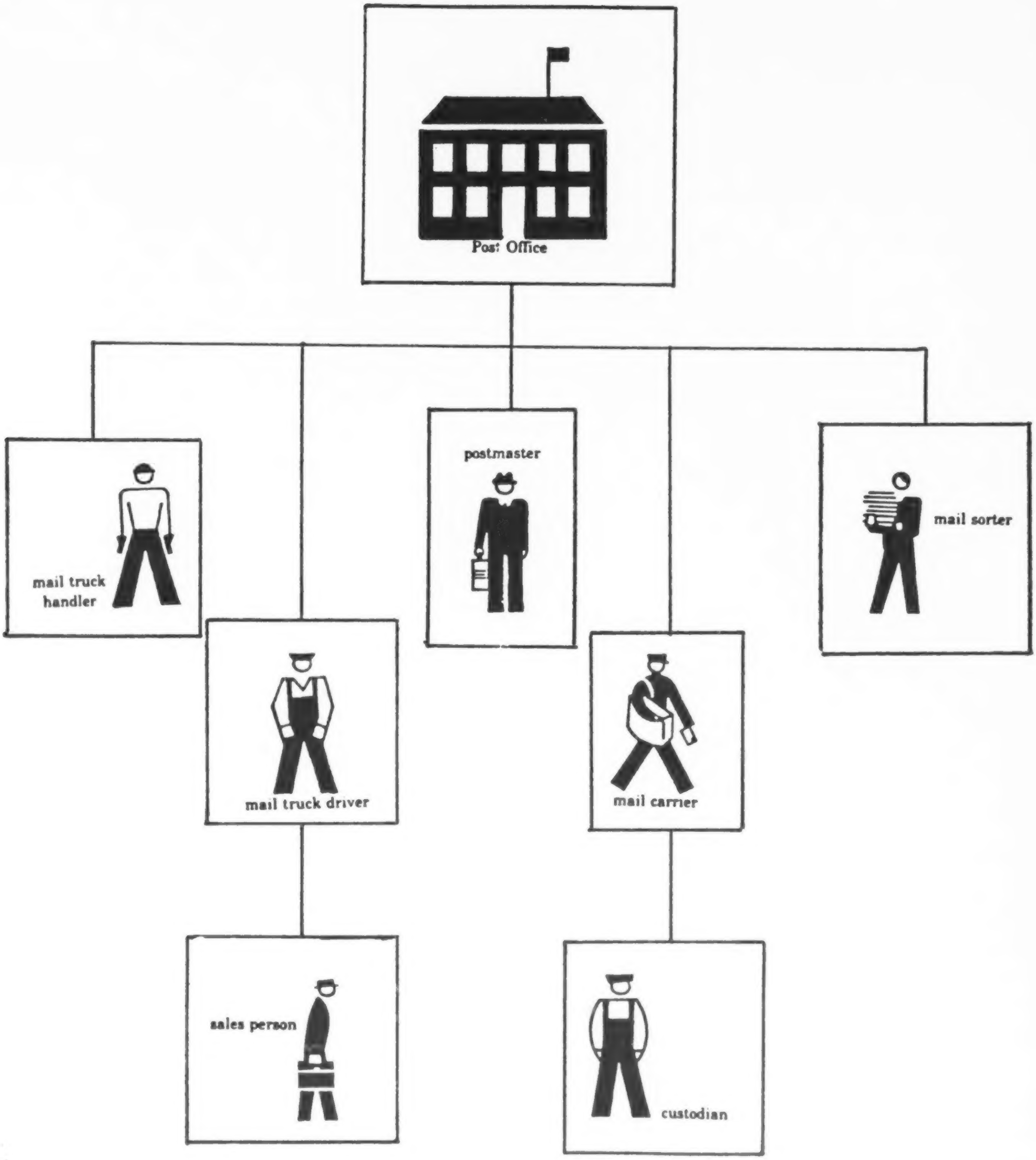

Health Inspector
Farmer
Dairy Delivery Person
PRODUCT
Milk
Garbage Collector
Truck Loaders
Buyer
Grocery Store Clerk

Figure 4


Post Office
postmaster
mail truck handler
mail sorter
mail truck driver
mail carrier
sales person
custodian

1. An indepth study of job families.
2. The application of academics to job related activities.
3. An evaluation of each student's work interests.
4. The development of a process whereby students can gather occupational information.
5. A study of responsible behaviors necessary for success in a work situation.
6. An awareness of the decision making process and opportunities to apply this process to personal, academic, and occupational situations.

During this portion of the career development program, the student with mental disabilities explores various career options, learning what is required to judge their own strengths and weaknesses against abilities required for various occupations.

Activities that can be used in the junior high career development program are:

Tag along day. A field observation or "tag along day," also known as "shadowing," has applicability to career development for a student with mental disabilities. This approach involves placing an upper age elementary or junior high student in a work setting for a portion of a day to act as an observer and interactor with the worker. Following the worker as his or her "shadow" enables the student to observe what is required by the job not only in the cognitive and skill areas, but in the affective area as well. Procedures for developing a shadowing experience include:

1. A brief discussion of the purpose of the shadowing experiences.
2. Presentation of work sites for the shadowing experiences.
3. An individualized plan for each student based on career interests of the student and judgment of special education staff.
4. An orientation to the actual experience - questions to be asked, discussion of behaviors and activities to be observed, discussion of types of behavior and abilities employers will be expecting from students.
5. Completion of a log sheet.
6. Group time to share experiences with other students.

Career vocabulary bulletin board. Each month a group of students can analyze a job family or specific career and post a vocabulary list relating to it. A word can be added daily. The other students in the class are to guess the job family or career by dropping the guess along with their name, date, and time of entry into a box.

Establishing a class business. At a more advanced level, students can choose a way to make money and to develop a stop by step plan for carrying out the activity. Students should be made aware of how the work in the class business relates to work done in the real world. Some areas of planning are:

1. Selecting a product or service to be produced.
2. Selecting methods of working--individual, small group, assembly line production.
3. Establishing a record keeping system.
4. Obtaining materials needed.
5. Developing an advertising program (language arts class).
6. Participating in an evaluation plan of working conditions and final product/services.
7. Developing plans to change the base of operation.
8. Preparing a company report (language arts class).
9. Establishing profits and planning for their use (social studies class).
10. Designing stock certificates (art class).
11. Developing a procedure to figure profit and loss (math class).
12. Providing for rotation of jobs in the class business and an opportunity to discuss feelings about the different roles.
13. Preparing a procedure for closing the business.

A post office is a good business to establish in class and a good time to begin would be in February for Valentine's Day or in December for the holidays. Each classroom has two mailboxes--one marked "Local" and the other "Out of Town." If a child wishes to mail something to a friend, he or she clearly addresses the envelope and places it in the Out of Town box. (Each class chooses a "town" name that incorporates the teacher's name. Each classroom has a list of town numbers and names posted so that a sender can address an envelope simply by knowing the receiver's teacher.) The mail carriers make regular stops at the Out of Town boxes. They take the mail to the central post office where they cancel it, sort it, and the deliver it to the appropriate "local" boxes. Each class has its own method of distributing the local mail. Each child in the class could have his or her own mailbox. This is a "special delivery" service for special mail. Children should be encouraged to write to the principal or other people working in the building. The choice of the post office as the business develops awareness about a variety of jobs, and also provides instruction pertaining to community resources.

Decision drum. Vignettes are prepared by the teacher. Example: "Some of my best friends go to the shopping mall every day. They think its keen to take things.

No one has been caught yet. I am sure someone will see them take things and they will be caught. My friends always ask me to go with them to the mall. I don't want to go with them and get in trouble. I like them and would like to go. As a friend, I want to tell them to stop stealing. After all, we all get an allowance from our parents. We all have some money to spend. What should I do?"

Print the vignettes on cards and place them in a Decision Drum. A student selects a card and the group follows a procedure to reach a decision about the problem described. The suggested procedure is:

1. Read the dilemma out loud.
2. Discuss the dilemma.
3. Decide what types of alternatives can be taken.
4. Discuss the consequences of each alternative.
5. Decide upon a course of action.
6. Role play the dilemma with a course of action.

Good worker traits. A chart can be made showing the relationship of a good worker trait to school, to the home, and the job (see Figure 5).

Figure 5

Good Worker Traits	Applies to School	When?	Applies to Home	When?	Applies to Job	When?
Follows directions	Yes	Doing work assignments	Yes	Making a recipe	Yes	Doing what the boss asks

Resource

In a resource program, the teacher can work individually with students with mental disabilities to begin nurturing work preference and future career training. When the teacher is focusing on academic remediation, time can be spent reinforcing the use of academics in the general world of work and the application of certain subject areas to specific careers.

Any type of class activity involving teamwork, listening, or following directions is an excellent precursor to career development. When providing processing training, many activities can be couched in terms of a career development orientation. Job related environmental sounds can be used to help develop auditory discrimination.

Auditory memory can be practiced through the use of work related terms, names of careers, and so forth. Grouping specific jobs into job families is a useful classification activity.

Motor development exercises that emphasize dexterity and coordination help students with mental disabilities develop the skills needed for assembly type tasks. Gross and fine motor activities may include assembling simple and complex units; sorting according to size, shape, color, or texture; and using simple and involved eye-hand coordination. Stacking, stringing, folding, sorting, inserting, turning, and opening exercises are all beneficial. Simple machine usage may be demonstrated by using a pencil sharpener, a hammer, pliers, or other tools in routine tasks.

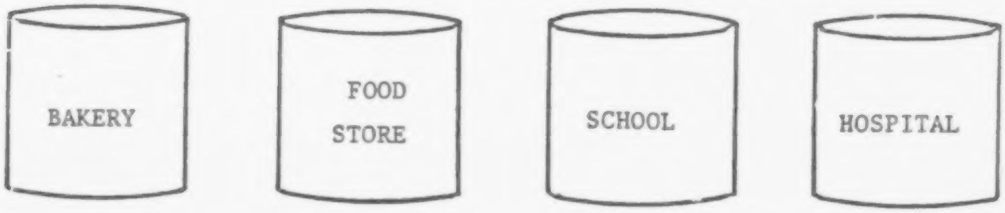
Other general academic activities that can be given a career development orientation include the following:

1. Completing word hunts using jobs, workers' names, and tools.
2. Using sequence cards showing step-by-step procedures necessary to perform a job or carry out a daily living task such as buying a product at a store.
3. Categorizing various products according to roles of workers.
4. Identifying vocabulary words in relation to job products or job services.
5. Compiling an "All About Me" notebook, an activity which incorporates such concepts and skills as time relationships, prepositional word identification, organizational skills, and sequencing.

Specific Activities

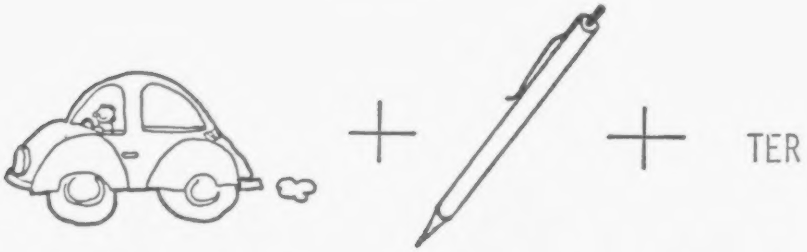
Where Can It Be Found? Make a set of 10-12 cards in the shape of cans (see Figure 6). On each card write a different place name. Give the students a list of vocabulary words dealing with workers and tools that correspond to the places identified, and have students match the words to the appropriate place. Specialized words may be used that encourage vocabulary development and the use of dictionary skills.

Figure 6



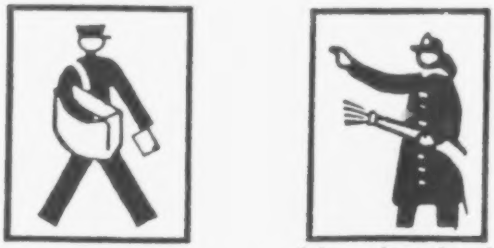
Career Rebus Cards. Use a file card, magic marker, contact paper for protection, and some imagination (see Figure 7). For example, carpenter is represented by a sketch of a car plus a sketch of a pen and the letters TER.

Figure 7



Unscramble Sheet. Have students unscramble the names of the occupations drawn and described on a worksheet (see Figure 8).

Figure 8



I deliver letters to your house.
ALANMIM

I drive a big red truck
and put out fires.
IRMNAEF

Sentence Cut-Up. Cut sentences apart that describe workers performing their jobs and the appropriate tools they use (see Figure 9). Mix the parts up and have students try to put them back together so that the worker is matched with the correct job and tools.

Why Is It Important? Show students the importance of a particular subject area such as reading. Put a number of items in a box. Take out one at a time. Have the students identify the item and then guess why the worker needs to know how to read it in order to use it. The box might contain a newspaper, a TV guide, a letter, a cookbook, a pill bottle, a catalog, a telephone directory, a bus schedule, directions for putting something together, a check, and a map.

Newspaper Activities

1. Cut out all the jobs listed in the Sunday classified section and then have students organize them in file boxes according to such categorical areas as job family, environment, or product/service outcome.

Figure 9

A WAITRESS	USES PENCIL AND PAPER	TO WRITE YOUR ORDER.
THE ROAD WORKER	SPREADS TAR	WITH A ROLLER.
THE UMPIRE	BLOWS A WHISTLE	WHEN A FOUL IS MADE.
A DESIGNER	DRAWS PATTERNS	ON PAPER.
A MODEL	HELPS SELL CLOTHING	TO BUYERS.
A BASEBALL PLAYER	USES A GLOVE	TO CATCH A BALL.
A ZOO KEEPER	CARES FOR ANIMALS	IN A ZOO.
DOCTORS	HELP CHILDREN	WHO ARE ILL.
A TESTING SUPERVISOR	TESTS THINGS	FOR STRENGTH.

2. Circle every job on a particular page of the paper.
3. Place ads for jobs in alphabetical order.
4. Label pictures according to the type of work being performed.
5. Categorize want ads according to training needed.
6. Categorize jobs advertised as "jobs I want to do," "jobs I would like to learn more about," and "jobs I am not interested in."
7. Clip an ad for food, clothing, entertainment, or home maintenance, and then answer the question, "What jobs are associated with this ad?"
8. Locate ads that fall into a specified category, such as indoor jobs, outdoor jobs, jobs requiring experience, or seasonal jobs.

9. Clip a front-page story describing an event and then list jobs that may be related to that event.

10. Categorize articles that describe people's activities according to role, e.g., family member, citizen, worker, and so on.

Career Oriented Games

1. When assignments for a class period have been completed, the resource teacher often makes games available for use by the students. Family games such as Charades, "What's My Line," and "20 Questions" can be used to familiarize students with various occupations. Career bingo cards can be prepared with the names of jobs printed in each square. The caller uses a brief sentence description of a job responsibility. "I sweep the floors in offices." "My work is to take care of you when you are sick."

2. Matching games are highly reinforcing and can be used during individual activity periods. Pictures of workers can be matched to the place of employment, work clothing, equipment, job performance tasks, or to vocabulary words related to the particular occupation.

3. Other teacher-made games can be modeled after a commercially produced game format. The child moves the marker two spaces forward if a question about a worker is answered correctly. The child loses a turn or moves backward if the spinner points to a bad habit or negative work behavior. With some variation, such games may be used as evaluation techniques. It must be remembered, though, that knowledge about jobs obtained through games alone does not ensure adequate career development.

4. Memory games called "Job Jams" help establish problem solving procedures and provide short term memory training. An example of such an exercise is: "Pretend you are a truck driver, and you must make the following stops on your route - Computer Land, Al's Garage, John's Barber Shop, Domino's Pizza. How can you use a memory trick to help you make your stops in the order given?"

Self-Contained Classes

A more comprehensive, structured, and diversified approach to career development may be designed for students who special placement is in a self-contained class. For example, careers may be studied in conjunction with the seasons and specific holidays.

Season Career Activities

1. September: safety--police work

2. October: fall harvest and apple orchard trip; Fire Prevention Week--firefighters; Halloween-- candy makers; Book Week--school librarian; visit a book bindery

3. November: Thanksgiving--butcher, chef, food store visits, and personnel interviews

4. December: Christmas and Hanukkah--visits by a minister, priest, and rabbi

5. January: Car care and auto mechanics--visit to a garage

6. February: Valentine's Day--postal workers and post office visit

7. March: Spring--the five senses and the telephone worker

8. April: Easter and Passover--visit by a minister or missionary; health unit--doctors, nurses, dentists, hygienists; Earth Day--pollution control with environmental specialists

9. May: Mother's Day--interview various mothers about their home jobs

10. June: Music and sound--band teachers, music store clerks

11. Summer: Vacations and travel--park district employees and transportation workers

As a culminating activity, a class scrapbook, "A Year of Careers," may be kept to show the careers studied and the activities used to explore them.

Career Pacs. "Career Pacs" are instructional materials designed by teachers to introduce career development. "Career Pacs" are multi-media packages that use a hands on approach. Teachers can compile materials in a large box that will give students an opportunity to develop knowledge about jobs through actual, concrete experiences. Items in the box should include uniforms and tools of a selected job, pictorial or written information about some of the job responsibilities, pictures of the person at work and of the work environment; photos of actual workers, cassettes which play back the sounds of the job or which contain an interview with the person performing the job; sample forms, and any other items related to the chosen occupation. These materials can then be used by the student for role playing and practicing work tasks.

Other sample activities that can be used by a teacher of a self-contained class are:

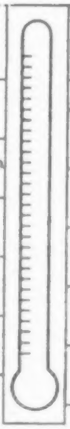
We Need a ___. Have the children draw a life-sized figure of a child their own age. Then ask them to list as many occupations as they can which help that child in some way. Try then to match the parts of the body according to occupations which are related to them, e.g., hair - barber, feet - shoe salesperson, teeth - dentist.

Work Detail. This classroom experiment helps illustrate the concept of division of labor. On the first day, assign one child all of the myriad of classroom duties; this child must pass out books, collect milk money, and so forth. On the second day, assign several children the classroom duties, each being responsible for only one duty at a time. On the third day, assign several other children the classroom duties, but have them all work together to carry them out. On the fourth day, discuss what happened. On which day did the work go most smoothly. On which day was the least time taken up with classroom duties? On which day were the children happiest?

Temperature Chart. Use this device to begin to assess children's developing interest in a variety of different areas that will affect their attitudes toward careers, leisure time activities, academic work, and social contacts. Suggested areas to be assessed include sports and games, jobs, arts and crafts, music, entertainment, and school subjects (Figure 10).

Figure 10

SAMPLE "TEMPERATURE CHART"



	How interested am I?	How important is this to me?	What is my ability now?	What would I like my ability to be?
Very high				
Fairly High				
Average				
Fairly low				
Very low				

Interest area ______________________________

Plan of action ______________________________

"Who? What? Where? When?" Worksheets. Cards of tagboard are made with short phrases telling who works, where the work is done, what the work is, and when the work occurs (see Figure 11). Students who are able to do independent worksheets could sort the tagboard phrases under the proper category. For those students needing an activity with more motor involvement, the tagboard strips could be sorted and then placed in a pocket chart labeled with the four "Ws."

Figure 11

Who What Where When

-around noontime
-the plumber
-sweeps the floors
-builds chairs
-from 8-4 o'clock
in an office

-the custodian
-hammers nails
-at the factory
-at rush hour
-the landscaper
-cleans windows
-in the hospital

Class Chart. Develop a class chart to match classroom skills with a specific job (e.g. mastering of alphabetical order - file clerk). This could also be put in the form of a matching card game or a flannel board activity. Encourage the children to begin to think about the skills that a person needs to work at a particular job by relating the skills and work habits learned in school to this particular type of work.

Example: Gas Station Attendant

a. School: Addition and subtraction of money problems. Job: Making change for the customer

b. School: Following written directions. Job: Reading a manual to find out how to fix a smog device.

c. School: Learning metric measurements. Job: Using tools which are calibrated in metric measurements.

d. School: Coming to school on time. Job: Attendant must be at work on time to open shop or customers may be lost.

e. School: Being polite and pleasant. Job: Customers expect to be greeted politely.

f. School: Working without wasting time. Job: Boss expects worker to work eight hours for eight hours pay. Also, a good worker may get a raise in pay or a promotion.

Occupation Corner. Each week feature one occupation in the Occupation Corner. You might include a grill person, school secretary, grocer, bank teller, or packer. Collect items which illustrate that occupation. For a secretary, you might include and label a telephone, tape recorder, typewriter, ditto masters, telephone book, onion skin paper, carbon paper, rubber stamp, and money wrappers for lunch money. Allow students time to talk about the various items, to touch them, and to use them. With the students, make a list of the duties of such a worker. Permit time for students to express, before the class, reasons they would or would not like the job of the week.

Career Time Capsule. When beginning a study of a job family or a specific job, the class should write an experience story about what they think the job may be like. The class story could be stored in labeled cans with plastic lids. At the conclusion of the unit or lesson, each can would be opened; the story read; and a new story written showing any changes in the students' perceptions of the job.

Careers from Labels. Have children collect a variety of labels from cans, boxes, and other packages. These may be used for reading or math activities at another time. Choose a label and use it as a basis to begin a discussion of all the jobs that are associated with the label. An experience story can be written by the class using the label as a title, accompanied by a list of the jobs and a sentence telling how each is associated with the label.

Class Jobs. Classroom jobs should be taken as seriously by the teacher and class as a lesson in mathematics. When the class really depends on a job to be done, the child will value his or her own importance and this will intensify the child's pride in the role as a worker. However, to make this a meaningful concept, the assigned room jobs must be seen as being essential to the functioning of the class. These tasks should not be done by the teacher or aide when time in the school day runs out or because they can do them more quickly and with less mess and bother than the children. Just as mathematics has a special time period each day, so should there be a special "work time" of day for the performance of classroom jobs. In this way, the school day will not be over until the jobs are completed just as in the real work world.

When the class jobs change and rotate, the student presently holding the position should act as the trainer to the new worker on the job. The teacher can assign one child the job of supervising the daily routine jobs of the other students. The chart of classroom helper jobs can also be made more relevant to future jobs by placing the name or picture of the real life occupation that most closely relates to the class job next to its name on the chart. For example, child's name (Sue); class helper (juice helper); real life job (cafeteria worker).

The children should be able to see themselves as valuable assets to the classroom and to the school as a whole when these jobs are accomplished and noticed by others. Another approach would involve letting the students think overnight about a job they could do to make the school nicer or to keep it as pleasant as it is. Each student decides on a job to do and then performs it for a week. Sample jobs include watering the flowers, cleaning the erasers and the chalkboard, reshelving books, or emptying the waste basket.

The teacher can give students some early practice in writing want ads while working at these classroom jobs. These ads should be for jobs the children would like to do with the skills they have. Post the ads on the bulletin board. Some suggestions might include: Help a friend with a writing assignment, water the flowers, take the lunch count to the office, help someone with math, pass out papers, and so forth. Instead of a set rotation for changing classroom jobs, children can write some want ads, and the ads can be posted so students can choose the next class job they will perform.

Parents should be aware of the classroom job program. Many school helper jobs can be transferred into the home situation as routine chores the students are expected to perform. Work must be considered a necessary part of home life as well as school routine.

The "business" of the Classroom. By continuously interpreting the activities of the classroom in a vocational context, the child will be better equipped to transfer classroom learning to the work situation. Completing a work assignment on time, for instance, is a first step in the development of dependability as an obligation of an employee to an employer.

For a period of time, the classroom routines can be carried out much like they would be in a real business. Instead of taking attendance by using a seating chart or calling roll, the children can punch time cards. Assignments can be prepared as work contracts and placed at each child's work station. Breaktime could be used to designate free play or recess periods in which the child is given the independence to have a snack or to engage in other unstructured activities. Daily announcements can be posted on the bulletin board and daily papers can be stamped using a date marker. Dates on the stamp can be compared with the dates on the calendar.

An "odd job" box can be used as a means of communicating that good workers must remain profitably busy at all times. When the assigned job is completed, the student can go to this box and select another job. Weekly conferences can be scheduled between teacher (employer) and child (employee) to discuss general progress and any problems encountered during work (job) performance. The child's good work for the day is reinforced through tokens, "cash," or "paychecks," depending on the comprehension level of the children. These then can be used to purchase items from the class store or can be deposited into the class bank for future spending.

In the beginning, daily reinforcements may be necessary, but eventually the students should receive their "pay check" at the end of the week or two weeks to more closely parallel the pay of a real work situation. Particular duties can be assigned to the students each week for which they will receive pay. At the end of the week, each child can bring a toy or game from home to put in the "Rent-A-Toy Store." Students can be permitted to rent toys for an allotted amount of time with their earnings. This simulated business atmosphere is especially helpful in bringing the student into reality with the work situation, understanding the meaning of speed and production, and seeing the importance of cooperation with others.

Relating Academics to Career Education

As a more general foundation in work skills and interpersonal relationships is laid, specific academic areas of the curriculum should be developed around a career development focus. The academic areas of a curriculum for students with mental disabilities may easily be related to career development. The academic curriculum focuses on the student's need to function successfully in the daily routine of life. When academic assignments are related to jobs and activities of daily living, learning becomes more concrete and skills are more easily acquired.

Functionality is the key to which the academic skills within a curriculum could be incorporated into a career education program for students with mental disabilities. Functionality consists of six characteristics:

1. The skill is necessary to prepare the student to function in the daily environment and has high probability for need in the future environment, the adult world.

2. The skill is needed to allow the student to reach the desired level of functioning most efficiently.

3. The skills, instructional materials, and teaching activities are those that will be encountered in the student's normal environment.

4. The criteria selected for determining mastery of the skill are consistent with the standards that are expected within the student's home and community environment.

5. The skill represents a chronologically age appropriate skill.

6. The skill can take place in a natural environment at natural occurring times of the day.

When deciding on the functional skills to be taught in a career development program, generalization levels of these skills should be considered. When objectives and skills are selected, the teacher should ask of each - "Does the acquisition of this skill tend to make the student people specific, place specific, or instructional material specific?" If the answer is "yes" to any of these, the skill and instructional methodology used should be reevaluated and redesigned to allow for complete generalization of the skill being taught. Only when the teacher can demonstrate that the student can use the acquired skills with other persons, utilizing different language cues, in a variety of settings, in practical activities of daily living, over a period of time, can it be stated that the student has mastered the skill.

To maximize the probability that skills will be acquired and generalized for use in the appropriate setting, it is important to teach those behaviors in the settings in which they normally occur. Hence, a community based training approach is best. Teaching and practicing the skills in a natural environment helps generalize and maintain the skills more appropriately than those taught in a classroom or under a simulated condition.

Skills which normally occur at home should most naturally be taught in the home. Those which normally occur on a job should be taught in a work site and those behaviors that occur in both environments would be taught in both. This is why there is a need for a community based training approach. Expecting students with mental disabilities to generalize information taught in school settings to natural environments without supervised exposure is not being realistic.

Placing the appropriate amount of coins in vending machines is a more functional fine motor skill than putting pegs in a pegboard. Bus riding is best taught on real buses; street crossing instruction is most effective when done at actual intersections; use of fast food restaurants requires teaching in local places of business. When instruction moves to the very location where the skills will be used, the student learns to perform in the presence of the natural cues and stimuli and skill transfer problems tend to diminish.

The functional vocational and social survival skills are those behaviors that are directly related to job performance and those behaviors that indirectly influence the behavior of others. A sequence of these types of functional skills can be developed by reviewing research in the area, interviewing employers to rate various behaviors in priority of importance, analyzing a variety of job evaluation forms used by businesses, and by reviewing the tasks required in routine daily life functions.

Regardless of the type of special education placement or age level of the student, career development can be related to the academics being taught. There are several ways this can done within the mental disabilities program.

Incidental instruction is a technique by which the academic area of the curriculum remains unchanged, but at various times information concerning its applicability to certain jobs is planned as part of the ongoing instruction. Suggested activities include:

1. using pictures, charts, films, and filmstrips to illustrate career opportunities within a subject area.

2. taking advantage of planned field trips to point out the variety of jobs available at community sites.

3. taking the work out of reading by putting a little "work" into the material being read.

4. reading biographies of famous persons and spending some time discussing the field of work in which they were involved.

5. having resource persons who visit the class discuss aspects of jobs in the particular field they represent.

6. making bulletin boards that illustrate careers in given subject areas.

The infusion technique relates to the teaching of career education within the content of the actual academic instruction. The basic premise here is that the content area (e.g., math), the specific objective (computing column addition using three place values), and the selected instructional activity (worksheet) remain constant, while the setting for the activity changes (e.g., problems given represent food prices on a restaurant bill rather than columns of unrelated numbers in a workbook.

Other Examples Include

1. Reading - to match two synonyms when given a multiple listing of words; worksheet; use synonyms that appear on work applications (past employment - previous employment; residence - address).

2. Written Expression - to write a simple paragraph using a sequence of events; writing assignment with pictorial or verbal cues, oriented to career education.

3. Math - to write the time as denoted on a clock face; worksheet; use times on the clock and statement describing the time in relation to a worker (the face on the clock reads 8:00; the worksheet sentence below the clock face states "Judy comes to her job at ____ o'clock.").

4. Spelling - to locate correctly spelled words when given preprinted letters; wordhunt; use words depicting tools, jobs, and workers as well as regular spelling words.

When implementing any of these approaches, several practices should be kept in mind. In a unit on the use of completing forms used in everyday life situations, be certain that actual forms are used. It is important that students actually use the real form, seeing the various sizes and shapes, differing formats, and sizes of print. All forms aren't 8 1/2 x 11 in size, white, with purple print. Whenever possible when working with math activities, the student's actual income and expected expenditures should be used in composing and calculating budgets or doing other types of problems. Crossword puzzles and word hunts are effective ways to teach job related vocabulary terms. As much as the scheduling and subject matter permits, listening activities should be incorporated into the career development secondary program.

Commercially made materials for students with mental disabilities such as consumable workbooks, films, filmstrips, and kits are available for use within each of the subject areas. The workbook materials are not always kept by students after they leave the special program, and even if they were, often are not as relevant to classroom activities as are worksheets or other assignments that are teacher prepared. Therefore, the student should keep a notebook for each class to collect important facts for later reference. For example, easily read recipes can be filed in the home economics folder, first aid instructions in the science notebook, samples of vocational forms in the vocations folder. Each folder may be color coded for ease of handling.

Through specifically planned instructional activities, incidental learning experiences, and activities that relate academics to jobs and aspects of daily living, career development can be an effective and meaningful part of the special education program for students with mental disabilities. In addition, the use of any of these approaches does not detract from academic instruction.

High School

The high school career development program for students with mental disabilities should offer:

1. Academics related to functions of daily living - The general areas of instruction would be consumer economics, healthful living, government, community resources, and occupational information. Curriculum areas that can be applied to these general units are communication (reading, writing, and spelling), computations, reading, and problem solving.

2. Vocations class - This course consists of instruction in developing skills for seeking and retaining employment as well as further investigation of careers. The focus of this class should be a study of those factors that contribute to job maintenance. Knowledge and practical experience with these factors will help increase job maintenance and lessen the incidence of termination.

3. Vocational assessment - This evaluation should be used to plan and refine the student's IEP and specific program offerings. The components of the assessment may include adaptive behavior, interpersonal skills, manual dexterity, performance on job samples and job interests.

4. Work experience - Meaningful work options that include competitive employment with and without support services; supervised work in community and business settings; specialized industrial based program for work teams of students based in one site; sheltered employment; and work carried out in home settings.

5. Seminars - The seminar session should attempt to provide an atmosphere where students with mental disabilities can discuss problems associated with their jobs. Role playing is a technique that can be used here. These seminars promote the development of thinking patterns by discussing solutions to problems and understanding the consequences of actions.

6. Counseling - The sessions would be designed to cover appropriate work habits and behaviors on the job as well as an emphasis on other types of social-personal problems. These counseling services may be offered on a group or individual basis.

7. Other related services as required.

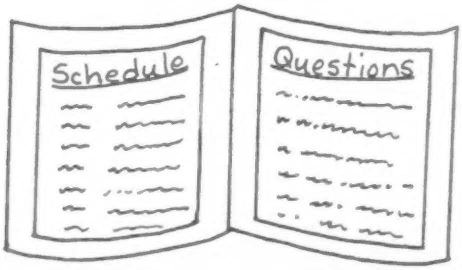
8. Plan for transitioning from high school to the adult world.

Specific Activities which Incorporate Academics Related to Daily Living

Some specific activities for a secondary program are:

1. A folder is set up with a worksheet showing destination and arrival times and an actual bus or train schedule (see Figure 12). The students use the schedule to find the correct departure times corresponding to a list of questions about arrival and departure times. This activity can be altered using TV guides, movie schedules from the newspaper, or pages from a phone book.

Figure 12



2. The weekly food ads from a newspaper would be distributed to students. Each would plan a menu using the ads, decide where to shop, and compute the cost of the items needed to prepare the menu.

3. Students prepare snacks and meals following preparation directions printed on the labels of actual food packages.

4. Activities should be provided using a personal calendar of key dates to send cards and notes. Experiences should include addressing envelopes, writing the return address, writing the greeting and signing the card. Postcards and longer notes should also be included in written expression activities.

5. Using a variety of game boards, students should develop math skills necessary to participate in games by using score keeping, moving game tokens, paying out money replicas, and so forth.

6. Using actual posters and notices displayed in public places in the community, have students answer specific questions of general interest. This may be done as a verbal or written exercise.

7. Opportunities should be provided for using actual vending machines. Experiences should include the use of several types of machines, the selection of coins needed to purchase a desired item, the use of more than the exact amount, and the computation and verification of change received. Various coin combinations should be experienced.

8. "Just Get the Facts" - Make a recording of a telephone conversation. Have students listen to the taped conversation and ask them to listen for important facts. They may write down notes. Ask students direct questions such as name, place, time, directions given, and message to be left.

9. "Follow My Lead" - Distribute appropriate sales receipts to students and instruct them to listen to directions so they can complete the receipts correctly. Example: Your customer number is 33. It should be written in the box above the words "customer order number." Put a check in the box labeled "cash." Put the name "Bill Johnson" under line that says "Sold To."

10. Comparative Buying - Have students complete a chart comparing prices at three different stores in each category of food from the four basic food groups. This should be done using grocery ads in the newspaper or through an actual visit to the grocery store (see Figure 13).

11. Ask students to compute the cost of furnishing a room in a home by using a mail order catalog.

12. Manual Information - Students would be placed in small groups. Each student in the group has a copy of an owner's manual for some piece of home equipment or appliance. Independent or group reading activities can be used to become familiar with the material in the manual. Written questions concerning safety tips, care of the appliance, the warranty conditions, and other product information are given to the group to answer.

13. Grooming and Health Care - Students are asked to bring to class examples of various health and beauty products (boxes, jars, other containers). As a classification activity, the products are grouped by the body parts for which they are intended. Each student completes a questionnaire on a set number of the products (Figure 14).

Figure 13

	Brand Name of Product	Name of Store	Price
Dairy Products			
-Milk		1.	
		2.	
		3.	
Meats			
-Whole Chicken		1.	
		2.	
		3.	
Breads/Cereals			
-White Bread		1.	
		2.	
		3.	
Fruits/Vegetables			
-1 lb. of Broccoli		1.	
		2.	
		3.	

Figure 14

Example:

Name of Product ___________

Read the label on the box or jar. Answer each question about the product.

1. Do you use the product for health or beauty?
2. What are the directions for using the product?
3. Is there a WARNING on the label?

Elements of a Work Study Component for Secondary Programming

Work Center. The work center has as its main objective the development of attitudes and behaviors relevant to vocational adjustment. The work center simulates a real work situation. Actual work samples are used to modify a student's work personality and to help develop a productive orientation as new skills are acquired. The center provides staff with an excellent opportunity for exploration of student incentives and attitudes toward a variety of work tasks. The environment, the task, and the work conditions can all be varied. Individual training, bench assembly work, or small work force orientation can be undertaken at the work center. Due to the nature of the work center, it can become an evaluation lab enabling the student to sample numerous job tasks involving many social and vocational skills. These experiences aid the staff and students in discovering the habits, attitudes, skills, and interests that are present and those needing to be refined or developed. Typical jobs that can be used to provide this hands-on training are small parts assembly, collating, use of hand tools, mail sorting, bagging/packaging, and filing.

General objectives of the work center include:

1. gaining knowledge of the working conditions and job opportunities in the particular job area.
2. using various tools connected with this field.
3. learning the safety procedure for the job area.
4. applying proper physical techniques in the storage, handling, and usage of materials and supplies associated with the job.
5. developing an understanding and appreciation for this type of work.
6. obtaining a feeling for the nature and scope of this job area.
7. learning the basic skills necessary for entrance into the specific job area.
8. gaining realistic experiences in the specific field.
9. assuming responsibilities directly related to the designated field.
10. developing social competencies associated with this area.
11. practicing the skill under variable conditions.

In order to implement these objectives, a training plan should be developed for each job area in the work center. In developing a training plan, one should:

1. perform a task analysis on the job under consideration
2. specify materials and equipment needed for the job
3. note standards of quality specifications of the customer
4. specify necessary output to meet quality control and prime period for job completion
5. identify learning difficulties in each step where preliminary training may be helpful

6. select and describe the proper work method

7. consider safety precautions

8. design special training equipment, including visual and auditory aids, if necessary

9. design a pictorial, simple written representation, or tape recording of the job for student reference

10. provide actual training for the students

11. record individual progress

12. give additional training when needed

13. revise portions of the work plan when necessary

14. develop variations of the task to be used once skill(s) are acquired

Since the work center is considered a "business," some students can serve as shop supervisors, receptionists to greet visitors and take phone messages, secretaries to do filing and typing, and shipping clerks to receive and dispense materials.

Shadowing. "Shadowing" or career sampling can also provide exposure to a variety of different jobs. Ideally, shadowing is described as following a specific employee on the job all day long as his or her shadow so that the shadow is able to observe what is required, not only in the cognitive and job skill areas, but in the affective area, as well. Shadowing is usually done in two to four week blocks. The time period is determined by the nature of the student and the objectives to be accomplished in each particular activity. The activity provides the student with an opportunity to see the daily routine of the worker being shadowed. A contract or plan is developed by the student and special education teacher describing the questions to be answered, the project to be completed, or the observations to be made during the shadowing experience. The student works with the special education staff and worker to be followed to determine how the activities will be done and then how to share this information with the class. Occupational information is gained but more important outcomes involve practice in making decisions, developing personal relations with a worker, and taking responsibility for one's own actions.

Experience Based Career Education. Experience Based Career Education is another kind of work/study program. It may be either an alternative to or a part of a planned sequence moving to the community work/study phase. The overall goals of this program are to assist in bridging the gap between classroom learning and real life situations and expose students to several careers which interest them as well as some they have not previously considered. In addition, the program aims at enhancing each student's self-confidence and abilities to plan, make realistic career choices, and become more self-reliant.

The program is set up to allow students to explore several occupations in the community to determine if their interests and capabilities match their career plans. The range of occupations for students varies from professional occupations to skilled and semi-skilled jobs. Community resource people serve as counselors and teachers in their respective fields. Students can observe workers and talk to them in a day-to-day situation. During the second phase of Experience Based Career Education, students develop projects with tangible products that provide evidence that their goals have been accomplished. These projects are produced through the cooperative effort of the student, special education staff, and the community resource people. The projects can emphasize life skills, basic academic skills, or career development. The end product may be a written report, a tape recording of the events, actual job performance, or a photo essay. Since payment is not involved, academic credit for the community experiences can be given. In addition to providing further career information, the program builds independence, self-respect, and develops decision making skills.

Industry-Based Program. The Industry-Based Program is a simulated work program based in the employing establishment rather than in the school. It enables students to be involved in an actual working environment with all of its conditions, pressures, demands, and expectations while also providing an orientation to a multiplicity of employment areas. A special staff member is assigned to a team of students in the particular industry. This approach may be extremely beneficial to those students having difficulty adjusting to the traditional school setting. Generally, the students work together in a structured environment as a team. Special teachers come into the industry to direct activities and to teach some of the related academic classes. Good site choices for an industry-based program are hospitals and hotels.

Work Lab. The Work Lab is another work study/approach. This approach is community-based on a non-paying basis. Here, students are placed on projects in the community with working adults. These placements are designed to meet individual student needs, abilities, learning styles, and interests. The students are assigned to a worker in the community in laboratories, offices, hospitals, schools, shops, factories, studios, or other work environments. Working adults at these sites serve as instructors for the students. The special education work/study staff maintain the community liaison necessary to provide learning sites for the student and support the community "instructors." Students learn through direct experience with actual tasks, events, and facts encountered on the community job. They learn from the community's working adults and they learn by doing. They gain hands-on experience and assess a variety of jobs in light of their interests. These expectations may lead to a desire to gain more indepth training. The work lab usually encompasses a three to six week period of time and occurs on a daily basis in the afternoon or morning. It is similar to pre-apprenticeship training, and is used to acquire the knowledge needed to gain employment. Sites may be rotated if this more appropriately meets students' needs. The work lab is specific-skill oriented.

Students learn academic skills applicable to their assigned work lab through the practical application of these academics in the work day. This type of program is especially helpful to the student when obtaining information to complete a job analysis, when answering questions about a particular job through direct experience rather than through books, and when wanting to explore a job choice before placement on a site in a work/study program. The work lab provides an opportunity for evaluation of on-task behavior, work production, and work accuracy.

Job Coach Approach. Job coaching may be an option needed by some students with mental disabilities. The approach is used for those students needing temporary one-on-one supervised training and support services on the actual job site. The student may receive specific job skill training as well as work related behavioral instruction services from job coaches include one or more of the following: mobility training, task analysis of the specific job, on-site evaluation of the student's work performance, reorganization of the sequence to performing the job, and on-site coaching through the various levels of job skill mastery.

Job Clubs. Job seeking has traditionally been regarded as a solitary activity. Instead of individual job counseling, the job club involves group meetings to promote social support from peers who are also trying to find jobs. Students are taught how to pursue job leads, prepare a resume, role play interview situations, initiate phone calls to prospective employers, and keep accurate records of the job search process. Traditional and nontraditional methods for obtaining job leads are stressed. Emphasis is placed on all the ways to find a job. Students are reminded that job finding is a full-time job in itself.

SUMMARY

This chapter contains basic information about the need for career development to be a basic part of the curriculum for students with mental disabilities. Career development can be incorporated into each type of special education delivery option (e.g., the resource program or the self-contained class). The information includes some of the basic career concepts, sequential activities, and program considerations for staff who prepare students with mental disabilities to become productive workers and participating members of the family and community. Samples of specific teaching activities are provided as well as suggestions for relating academics to career development. A comprehensive career development program should include the following components:

1. functional academics
2. a general introduction to the world of work
3. instruction in the use of leisure time
4. the parenting role as an important career
5. training in locating and maintaining a job
6. vocational assessment
7. parent counseling
8. a range of options for providing work experiences in the school, community, or special environment
9. social skill training
10. personal counseling
11. skill development in decision making

12 related services as necessary to enhance work and life adjustment

13. a transitioning procedure

Through specifically planned instructional activities, incidental learning experiences, and activities that relate academics to aspect of daily living, career development can be an effective and meaningful part of the special education program for students with mental disabilities.

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Chapter Ten

Use of Computers

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OVERVIEW

Microcomputers have been an integral part of special education for the past five to seven years and researchers recently reported that the number of computers placed in special education classes is on the rise (Becker, 1986; Cosden & Semmel, 1987). Over the years, enormous claims and promises of enhanced learning and more normalized lives for disabled individuals accompanied this influx of computers into special education. There is no question that for people with physical and sensory disabilities, the computer successfully provides greater access to the world around them. One need only see a student with cerebral palsy using a sonic head pointer and a computer to communicate with other student and adults to understand the power that the computer offers these student. However, for the large number of student with mild to moderate mental disabilities, many of the promises of more efficient computer-based learning are unrealized. Although some empirical studies demonstrate learning advantages resulting from computer-based instruction, others have not. Thus, the equivocal nature of this research leaves many teachers, parents, and administrators confused and uncertain about the benefits of computer-based instruction.

Hopefully, this chapter will help you separate dreams from realities and provide a clearer understanding of effective uses of the computer. In writing this chapter, we attempt to make it different from any that you might have read previously. We believe that it is different in two significant ways. First, we drew heavily upon existing empirical research to determine what are the best practices in computer use instead of talking about the ways computer might be used. Second, because we focused on demonstrated effective uses, we limited our discussion to only a few applications and did not attempt to provide general discussions of classroom computer use. If readers desire a more generic discussion of computer use with this population, there are a number of books and book chapters that deal with the topic at this level.

The Effects of the Computer on Learning

Most everyone agrees, at least at a verbal level, that the computer is simply an educational tool. However, if one examines the research literature closely, it appears that many educators attribute much more innate teaching potential to the computer than they do to other instructional media such as books, overhead projectors, and chalkboards. In his review of research on media and learning, Clark (1983) argues convincingly that computers and other media serve only as delivery mechanisms for instruction and do not influence learning directly. Clark states, "The best current evidence is that media are mere vehicles that deliver instruction but do not influence student achievement any more than the truck that delivers our groceries causes changes in our nutrition" (p. 445). Clark goes on to point out that bad instruction, whether or not it is delivered by a computer, will not result in student learning. Conversely, well designed instruction will result in learning regardless of the medium in which it is presented. Thus, one must conclude from Clark's review that if the computer is to be an effective instructional tool, then it must be used as a delivery medium for well designed instruction. The remainder of this paper will examine research on different type of instruction presented through the microcomputer medium.

Computer-Based Instruction

In surveys that examined both elementary and high school special education programs nationwide, investigators consistently reported that most of the computer-based instruction currently in use is of a drill-and-practice variety (Becker, 1986; Cosden & Semmel, 1987; Rieth, 1986; Russell, 1986). As the name implies, computer-based drill-and-practice is designed to reinforce previously learned information and to develop fluency or automaticity in a skill. There is no question that the nature of the computer makes it ideal for providing endless practice in almost any curricular area. For example, the computer can provide hours of practice without getting bored or frustrated, and with appropriate software, the practice can be individualized and carefully monitored. Unfortunately, the purpose of computer-based drill-and-practice has been largely misunderstood and the instructional robustness has been oversold. As a result, drill-and-practice has come under a great deal of criticism.

Critics of computer-based drill-and-practice argue that the computer has become an expensive electronic worksheet and that the power of the computer is not being used (Carlson & Silverman, 1986); that the stimulus-response nature of drill-and-practice software makes students passive recipients rather than active initiators of learning (Turkel & Podell, 1984); and that workbooks can be used for drill-and-practice at a much lower cost (Garson, 1983). While all of the criticism stated above may be true, none address the important issue of why drill-and-practice is needed, that is, to develop fluency in basic academic skills.

The Importance of Fluency

Recently, research coming from the field of cognitive psychology emphasized the importance of fluent and rapid access of information on higher order skills. For example, Lesgold (1983) and Togesen (1984) believe that students with disabilities do poorly in reading and math because they have failed to master basic skills. Take, for example, the task of reading. Students who read along trying to sound out each word as they come to it have no idea what they have read by the time they get to the end of a sentence. The same is true in spelling. If students are trying to do creative writing but are having to stop to recall how to spell each word, their attention is overburdened and they are unable to engage in meaningful composition. Likewise in mathematics, if students must constantly calculate answers to basic math facts, they have difficulty when they go on to higher-level skills.

A number of research studies have been conducted recently to examine the effects of computer-based drill-and-practice on the development of mathematics, reading, and spelling fluency. From these studies we have learned much about how to use computer technology effectively for developing fluency in academic tasks.

Fluency in Mathematics

Basically, there are two ways to solve basic math problems such as 5+3 or 15-7. One is to commit the answers to memory and then retrieve them at the appropriate time. A second is to use some sort of reconstructive counting strategy (e.g. finger counting) to solve the problem when it is encountered.

For many years educators assumed that in order to make the recall of basic math facts fluent, a student need only to spend large amounts of time practicing these facts. With the introduction of the microcomputer, many educators viewed it as the best way of providing students with unlimited amounts of practice (Gagne, 1983). However, researchers who looked at the effects of computer-based practice on fluency development in disabled learners found that computer-based drill-and-practice seldom leads to mathematical fluency.

Virtually all of the studies that examined the use of math drill-and-practice software, regardless of the software used, reported that the programs fail to develop generalized math fluency (Christiansen & Gerber, 1986; Goldman & Pellegrino, 1987; Hasselbring, Goin, & Bransford, 1987; Howell & Graica, 1985; McDermott & Watkins, 1983). Generally, findings from these studies showed that the use of computer-based drill-and-practice with youngsters with mild disabilities lead to slight increases in speed when counting strategies are in use. A close examination of these data suggest any increases in speed can be attributed to students becoming more efficient at counting and not due to the development of automatic recall of facts from memory.

From a number of studies conducted on math fluency (Hasselbring, Goin, & Bransford, 1987), we concluded that when students are using counting strategies to solve basic math facts, typical computer-based drill-and-practice activities do not produce developmental shifts whereby students begin to retrieve answers from memory. We found that if a learner with a mild disbility has not established the ability to retrieve an answer from memory before engaging in a drill-and-practice activity then time spent in drill-and-practice is essentially wasted. On the other hand, it a student can retrieve a fact from memory, even slowly, then the use of drill-and-practice will quickly lead to the fluent recall of that fact.

It is important to note that the results from the above studies do not suggest that drill-and-practice should be abandoned. On the contrary, these findings suggest that the use of drill-and-practice for developing fluency should be done cautiously and that learning-handicapped students should only practice problems for which they are able to retrieve answers from memory.

Tutorial Plus Drill

Results from the drill-and-practice studies suggest that the key to making computer-based drill an activity that will lead to fluency is through additional instruction that will establish information in long term memory. Thus, instead of using the computer for drill-and-practice only, the computer should serve as a tutor during the acquisition stage of learning. Once acquisition occurs (i.e. information is stored in long term memory), then drill-and-practice can be used effectively to make the retrieval of this information fluent and automatic.

One early study that demonstrated the combined effect of tutorial plus drill on the math achievement of youngsters with mild disabilities was conducted by Trifiletti, Frith, and Armstrong (1984). Using a program called SPARK-80, these investigators found that 40 minutes of computerized tutorial plus drill per day was more than twice as effective as an equivalent amount of math instruction delivered by a resource room teacher. The computer group produced over twice the yearly gains in standardized math achievement when compared to the control group.

Trifiletti et al. attributed much of the success of this program to the fact that the program sequenced instruction carefully, emphasized fluency as well as accuracy, and used a data management system that involved a specific decision-making algorithm applied to student speed and accuracy data. Thus, the program decided when to move a student on in the program and when additional instruction was needed. The management system also kept a history of learning on each student thus removing this administrative burden from the teacher.

In a study similar to Trifiletti et al., we examined the effect of tutorial plus drill on the development of retrieval strategies on learners with a mild disability (Hasselbring, Goin, & Bradsford, 1987). In this study, we collected response latency data on more than 150 students with mild disabilities and nondisabled students ages 7 through 14. The students with mild disabilities were assigned to either a computer or contrast condition while the nondisabled students served as contrasts only.

The computer group received training on a specially designed computer program for developing recall strategies in basic addition facts. The software program, called Fast Facts, was based on principles of effective instruction. The design features included (a) a small set of initial information to learn, (b) emphasis placed on accurate and rapid responses, (c) new information interspersed with learned information; (d) emphasis placed on mastery learning; and, (e) an extensive data monitoring and management system.

The computer group received daily instruction using Fast Facts for developing recall of addition and subtraction facts. Following each session on Fast Facts the students received a brief period of drill-and-practice over the facts that the student could retrieve from memory. The combined retrieval training plus drill-and-practice averaged only ten minutes per day. The contrast groups received only the math instruction provided by their classroom teacher.

The results of the study showed that on the average, after only 49 days of using the math software, the computer group increased the number of facts that were recalled from memory by 19, a 73% increase over the pretest. During the same period, the contrast group of disabled learners showed no change on the number of facts that they could recall from memory and the nonhandicapped contrast students averaged only eight additional facts. Thus, the students with disabiilties developed fluent facts at a rate twice that of their nondisabled peers.

From this research, we have concluded that the combination of recall training plus drill is a powerful mechanism for developing fluency in disabled learners. Further, with sufficient training, students with mild disabilities should be able to develop fluency at a level commensurate with their nondisabled peers.

Conclusions

From the research on drill-and-practice, it appears that, by itself, computer-based drill-and-practice is ineffective for developing fluency in learners with mild disabilities if they cannot already retrieve a fact from memory. Students who come to a drill-and-practice activity using counting strategies to solve basic facts will leave the activity using counting strategies to solve those same facts.

On the other hand, if a student comes to the drill-and-practice activity being able to recall some facts from memory, albeit slowly, drill-and-practice on those facts will lead to fluency in a relatively short time. If a student is unable to retrieve a fact from memory, it appears that combination of retrieval training plus drill results in significant increases in fluency for mildly learners with mild disabilities. For a discussion of non-computer based activities that may assist a student in developing retrieval strategies, the reader is referred to an article in Teaching Exceptional Student (Spring, 1987), entitled "Effective Mathematics Instruction" (Peters, et al., 1987).

Fluency in Reading

There is far more information on the effective use of computers for developing fluency in mathematics than in reading, nevertheless, there is a research literature developing. One example of a developing literature comes from cognitive psychology. The cognitively oriented reading research has recently emphasized the importance of fluent decoding skills on good reading comprehension. In addition, there is a growing consensus that the primary reading difficulty experienced by youngsters with mild disabilities is at the word, rather than the text, level of processing. These two generalizations suggest that a primary emphasis of reading instruction for students with mild disabilities should focus around activities that will strengthen their decoding and word reading skills (Torgesen, 1986). Although the empirical evidence is somewhat limited, there have been several studies that support the use of computer-based practice activities for the improvement of decoding fluency and whole-word reading.

At the grapheme-phoneme level of decoding, Jones, Torgesen, and Sexton (1987) found that the use of a computer program called Hint and Hunt I (Beck & Roth, 1984), with learners with mild disabilities for 15 minutes per day over a ten-week period resulted in a 27% increase in reading speed. More impressively, the students receiving the computer practice showed an accompanying 20% increase in accuracy on a list of generalized words that were never practiced during the training. In contrast, the control group showed only a 4% increase in speed and a 5% increase in accuracy on these same words. Jones et al. concluded that practice with the Hint and Hunt I program led to a generalized increase in decoding skills, and not simply improvements in reading a limited set of practice words. Further, the fact that accuracy increased, as well as speed, suggested that improvements in speed were not simply the result of a change in the reading strategy to improve speed over accuracy.

The Hint and Hunt I program is designed to be used with Hint and Hunt II and Construct-a-Word I and II. In a study that examined the effect of the Construct-a-Word software, Roth and Beck (1984) found that the decoding skills of poor readers were increased by 25%, resulting in a 17% increase in sentence reading speed. In contrast, the control group showed a negligible increase in decoding accuracy and only a 3% increase in sentence reading speed. Similar results were reported by Spring and Perry (in press) when they examined the use of computer-based practice for enhancing the fluency of word analysis skills. Thus, from these studies, it appears that specific well designed training, provided via computer (e.g. practice in recognizing and analyzing words varying in medial and vowel combinations), is effective in increasing the fluency of phonological decoding skills in learners with mild disabilities.

Since the effects of computer practice at the decoding level appear to be so beneficial to learners with mild disabilities, one would naturally conclude that whole word recognition would also benefit from the same practice. According to automaticity theory, fluent readers decode text automatically, thus they are able to read without expending attentional resources in decoding individual words. Fluent readers often have good comprehension because attention is available to process meaning. Conversely, poor readers must expend attentional resources to decode each word, as a result, their reading speed is slow and comprehension is more difficult. According to Samuels (1979), accurate but nonfluent readers have developed decoding skills but they need more practice before they become automatic. Thus, the use of a repeated reading method where the student re-reads the same passage several time gives the student the necessary practice. Theoretically, fluency and comprehension increase with each reading of a single passage and improvements are carried over to new passages.

In testing this theory, Rashotte and Torgesen (1985) used a computer to present learners with mild disabilities with reading passages containing various amounts of word overlap via the computer (note: although a computer was used to present the text passages, it appears that the passages could have been presented using more traditional procedures such as ditto sheets). The results showed that when the passages contained many of the same words, gains in reading speed were increased. However, it was also revealed that when the stories had few shared words, repeated reading was no more effective for improving speed than an equivalent amount of non-repetitive reading. Although the advantages of repeated reading were found to be equivocal, the authors reported that the students liked the repeated reading regardless of the degree of improvement. Roshotte and Torgesen felt that students enjoyed this exercise because the repeated reading of the same passage gave students the impression that their reading was becoming more fluent.

Conclusions

From the existing research, it appears that microcomputers are well suited for providing learners with mild disabilities with the kind of extended practice that can lead to increased fluency in decoding skills; however, the effectiveness of developing whole word fluency is yet inconclusive. Overall, the scope of the existing research in reading is clearly too narrow to draw any general conclusions about the utility of computer-based practice in remediating the overall reading deficiencies. Such a conclusion must be based on research extending over a longer range of time and focused over a much broader range of reading skills.

Fluency in Spelling

The ability to spell has been described as a much sought-after, but frequently unattained, outcome of language arts instruction for student with learners with mild disabilities (Larsen & Hammill, 1976). Like mathematics and reading, researchers and teachers alike have attempted to use computer-based drill-and-practice to develop both accuracy and fluency in spelling. The results of these attempts have been mixed.

In a study comparing a computerized drill-and-practice program to a traditional "say-write-check" procedure, Fitzgerald, Fick, and Milich (1986) found over a five-week period there were no differences between the computer and traditional forms of practice. However, as expected, both the computer and the traditional method were superior to a no practice condition. The investigators concluded from this research that the computer practice was at least equal to the traditional method.

A closer examination of the results, however, suggests that neither the computer nor the traditional practice methods were overly successful since the percentage of correctly spelled words over the five-week treatment period averaged only a little over 60%. This low level of mastery would suggest that both the computer and traditional forms of instruction were ineffective in developing spelling accuracy let alone fluency. A description of the instructional sequence employed by the software used in the study lends support to this conclusion. The instructional sequence consisted of having the student type each word three times: (a) copying from a model on the screen, (b) typing after the model was removed, and (c) entering the word into a sentence.

The software used in this study, like most other spelling software, required that the student only access the correct spelling from short-term memory. Thus, the practice that was provided with this program was very different from the terminal task of recalling the correct spelling of a word from long-term memory, a skill that is required when one engages in a writing task, for example. Thus, one alternate conclusion to the Fitzergald et al. study is that the instruction methodology was ineffective in developing retrieval of correct letter sequences from long-term memory, and the results that were obtained had little to do with the use of technology.

Findings similar to those reported by Fitzgerald et al. have been reported by a number of other researchers. For example, McDermott and Watkins (1983) reported no differences between computer-based and conventional remedial spelling instruction over a one-year period for learning disabled youngsters. Likewise, Haynes, Kapinus, Malouf, and MacArthur (1984) found no significant differences between computer and traditional spelling instruction on either mastery or retention of the spelling words. Further, after four days of practice on only five words, the students averaged only three correct spellings. From these studies one must conclude that instructional methodologies in spelling that fail to develop the retrieval of correct letter sequences from long-term memory are ineffective whether they are computer-based or not.

In a series of studies beginning in 1981, Hasselbring and his colleague began investigating the "voice presentation" of words via computer in combination with "imitation plus modeling" feedback. This methodology differs from most computer-based and traditional spelling instruction in two important ways. First, the student is presented with the word auditorially, thus no visual model is presented so that short-term memory cannot be invoked to spell the word; long-term memory must come into play. Second, when a word is spelled incorrectly, the computer imitates the student's error by showing the student's incorrect spelling, followed by a model of the correct spelling so that a comparison can be made.

Studies that have used this computer-based approach have been quite successful in developing high levels of spelling accuracy in learners with mild disabilities. In two single-subject studies using this methodology, Hasselbring (1982, 1984) reported an accuracy level over 90% for the students when they were presented with a twenty-word spelling list each week for three weeks. Follow-up studies using groups of learners with mild disabilities with alternating treatment designs have been even more impressive.

Hasselbring, Donovan, and Zimmerman (1987) reported that the voice-based spelling intervention described above was significantly better than traditional spelling instruction that includes, say-write-check methodology. Using an alternating treatment design, Hasselbring, et al. reported that when the computer intervention was employed, students averaged over 30% more correctly spelled words than when they used the traditional procedures. From these studies it was concluded that the use of voice-based and imitation-plus-modeling intervention was successful because students developed the ability to retrieve information from long-term memory as opposed to more common spelling instruction that requires only the use of short-term memory. These conclusions are supported in research conducted by Rieth (in preparation) where he used a "DEC-Talker" to present spelling words to learning handicapped youngsters. As in the Hasselbring et al. studies, Rieth's subjects were required to recall correct spelling from long-term memory, resulting in high levels of mastery on spelling post-tests.

Conclusions

The conclusions that can be drawn from the research on computer-based spelling instruction parallel those from reading and mathematics. That is, the computer-based practice should be instructionally sound and resemble as closely as possible the terminal skill that the teacher wants to develop in the student. For example, in spelling, there is no evidence to suggest that practice in unscrambling words or typing a word that is flashed on the screen will lead to improved spelling. The computer-based practice should require the student to use long-term memory to be successful in the task. Other important characteristics of effective computer-based spelling practice include limiting the size of the practice set of words, spacing practice over days rather than having the student practice for the same total time in one or two sessions, and emphasizing speed as well as accuracy.

Word Processors and Writing

Much has been written with respect to the use of the word processor for improving the writing skills of student with mild disabilities. Frequently authors laud the characteristics of word processors with respect to the positive effects they have on the writing process for learners with mild disabilities (Goldenberg, Russell, Carter, 1984; Hagen, 1984). Most often such things as the ease of text revision, production of a clean readable text, and a sense of authorship are mentioned as attributes of word processors that lead to improved writing. However, until recently, very little was known about the effectiveness of using word processors with students with disabilities. The following set of studies begin to provide some insight into this area of microcomputer-based instruction.

Writing Instruction

Morocco and Neuman (1987) conducted a two year observational study on the use of word processors with learners with mild disabilities. The authors observed that when teachers worked with students with disabilities on word processors, they brought three basic approaches to writing instruction: (a) they collaborated directly with student in eliciting content for their writing (substantive instruction); (b) they provided students with procedures for generating instruction (procedural instruction); and (c) they directly taught skills or knowledge about writing rules (direct instruction).

Morocco and Neuman reported that although the teachers in their study used all three types of writing instruction, they most often used substantive instruction. The teachers frequently took part in the writing process by eliciting ideas from the student. The authors reported that while this approach was useful to overly anxious students during the initial stages of the writing process, overall it develops a learned helplessness by making students overly dependent on the teacher for helping them determine what to say next. The investigators reported that the use of word processors encourages the substantive approach to writing instruction by making the student's text more public thus making it easier for the teacher to direct the composing process.

Morocco and Neuman concluded that students were most successful when teachers used a procedural approach to writing instruction. By providing students with strategies for generating ideas during writing, the students could generalize these procedures to other writing situations. In all cases that they examined, teachers' use of substantive instruction was less effective than the use of procedural instruction for getting students to generate ideas and produce a first draft.

Although Morocco and Neuman concluded that procedural writing instruction was most successful for teaching writing to learners with mild disabilities, it is not known whether the students would have been less successful had word processors not been used. This question was addressed in a recent study by Ellis (cited in Ellis & Sabornie, 1986). Ellis compared student writing under three conditions: (a) handwriting; (b) word processor; and (c) word processor plus idea processor (outlining program). Prior to receiving any specific writing instruction, the students were told to take a position and defend it. Following this task, the students in all three conditions were given a specific seven-point strategy for defending a position in writing.

The results of the study showed that prior to the strategy training there were no differences between the handwriting and word processor conditions. However, the word processor plus idea processor produced more positive results. Following strategy training the students' writing improved under all three conditions with the word processor plus idea processor again showing the best results. Ellis conducted that generic strategy training (e.g., outlining) was better than no training, however, specific strategy training was superior especially when paired with the microcomputer.

Revising

It is commonly assumed that the use of the word processor will lead to improved writing since the revisions process is made much simpler. For example, when revising a text, students no longer have to erase or recopy. However, from the small amount of data collected thus far it appears that this assumption may not be true. MacArthur, Graham, Skarvold (1986), Neuman and Morocco (1986), and Vacc (1987) all found that when using word processors, students tended to focus more on revisions that made the writing technically correct rather than revisions that enhanced the quality of their writing. The researchers reported that this type of revision led to writing with shallow ideas and insight. Both research groups concluded that while the use of word processors may facilitate the mechanics of revision since students are more willing to make changes when recopying is not required, the use of word processors does not necessarily lead to greater sophistication in the revision process.

Keyboarding and Word Processor Efficiency

A common complaint voiced by teachers using word processors for writing instruction is that students' lack of familiarity with the keyboard and word processor software interferes with the writing task. The fact that students do have difficulty with keyboarding and word processing software has been shown in several research studies. For example, from their studies of the writing process, MacArthur, Graham, and Skarvold (1986), as well as Neuman and Morocco (1986) suggest that keyboarding skill is vital to the success of writing when using a word processor. MacArthur et al. found that typing efficiency was highly correlated with length, quality, and story structure. Neuman and Morocco concluded from their research that students should be given daily keyboarding instruction if a word processor is to be used effectively as a medium for teaching writing.

Conclusions

Results reported by Morocco and Neuman as well as Ellis have clearly demonstrated the importance of procedural or strategy instruction for teaching writing to students with mild disbilities. Further, it appears that task-specific strategies are superior to generic strategies for developing writing skills. It is still unclear, however, what role the word processor should have in the overall writing process. From the research by Ellis, it appears that the computer's ability to handle both word processing and idea processing software is a key variable in writing instruction. Nevertheless, more research is needed before a clear understanding of the relationship between the writing process and the computer can be drawn. Finally, skill in keyboarding and word processor use should be included as an integral part of the writing process.

Thinking and Problem Solving

A number of authors have suggested that the computer is a powerful tool for the development of thinking and problem solving in students with disabilities (Maddux, 1984; Schiffman, Tobin, & Buchanan, 1982; Russell, 1986). Probably the most publicized way of developing problem solving skills has been through the use of interactive programming languages, the most prominent being LOGO.

LOGO

LOGO was originally developed as a computer-based learning environment in which student could learn computer programming, problem solving, and mathematical thinking. The LOGO learning environment is based on the developmental psychology of Jean Piaget. Although LOGO is generally thought of as a language for non-handicapped student, the philosophy of LOGO developers has been "no threshold, no ceiling". Thus, any student, including those with mental disabilities, should be able to learn LOGO. Much has been written concerning the use of LOGO with various handicapping conditions. Wier, Russell, and Valente (1982) make the following statement about using LOGO with disabled students:

> The LOGO experience is often the first in which disabled students tackle problems which require them to initiate solutions, try them out, respond to feedback, and decide whether to change track or to persist - all those things that tend not to happen in the dependent situations that typify their lives and most of their schooling.
> (p. 347)."

One feature of the LOGO language that seems to be especially adventitious for students with mild disabilities is "turtle graphics". With turtle graphics, the student programs the turtle (a small triangular object) to move around the screen and construct geometric and graphic designs. Wier and Watt (1981) believe that this use of the computer has specific positive outcomes on the student. They suggest that:

1. Fine motor skills are improved (through the typing).
2. Short-term memory is developed (while students learn to use a typewriter keyboard and the various logging in and programming procedures.
3. Students learn to spell the commands.
4. Students develop direction-giving and direction-following skills.
5. As they gain skill and experience in the use of LOGO, students can move from concrete to more abstract levels of thinking.

Although much has been written about the virtues of using LOGO with populations with disabilities, we have far too little empirical data to make any conclusive statements about the advantages or disadvantages of using LOGO with students with disabilities. As Torgesen (1986) points out, all of the evidence thus far on the use of LOGO with students with disabilities is anecdotal, and even the evaluations of LOGO with non-disabled youngsters is ambiguous. Thus, at the present time, there is little evidence that LOGO is as useful for the development problem solving skills in individuals with mild disabilities as its proponents would like us to believe.

Simulations

Computer-based simulations have long been recommended for teaching problem solving to students with disabiities (Goldenberg et al., 1984). In a simulation, the computer can model or recreate a real-life event that cannot be carried out easily in a traditional teaching environment. Simulations allow the student to vicariously experience such real-life events as space travel, homesteading in the 1800's, conducting a science experiment, or living as prey or predator in a food chain. Much has been written about the virtues of using simulations with learners with mild disabilities. For example, simulations can be used to introduce a sense of realism into what are often frustratingly abstract subjects for the learner with a mild disability. Further, computer simulations provide for the active participation rather than the passive role often taken by the handicapped learner. Dangers often associated with many real-life experiences can be eliminated. Real-life time periods can be compressed or expanded to meet learning requirements; at the same time, simulations offer a substantial cost reduction over many real-life experiences. Simulations also allow the learner to make low-risk decisions and receive feedback in the form of simulated consequences. Finally, the same event can be experienced more than once with the details slightly changed, thus allowing the learner to evolve more effective strategies over a series of attempts.

Certain guidelines are established for the appropriate use of computer simulations. Instances where simulations are most appropriate as a substitute for real-life experiences include:

1. when the learning objectives are complex and students are unlikely to be able to develop the needed skills in a real-life environment (e.g. work skills);
2. when the time scale of the real-life event is too long or too short to allow efficient learning (e.g. money management);
3. when the real-life experience involves danger or high cost (e.g. driver training); and
4. when the real-life event cannot be carried out in a normal teaching environment (e.g. voting).

Many simulations are described as programs for developing decision making, which is unquestionably an important aspect of problem solving. For example, in one of the most popular simulations, Oregon Trail, students must make numerous decisions as they interact with the simulation. Joiner, Silverstein, and Ross (1980) described the Oregon Trail simulation as follows:

> Oregon Trail simulates a settler family's journey by covered wagon, from Missouri to Oregon. Budget allotments must be made before the journey; the settlers' survival hinges on the judicious allocation of funds for clothing, medicine, supplies, ammunition, food, and emergency cash. Settlers can periodically choose between hunting for food, stopping at a fort (purchasing expensive supplies), or moving on. Hunting is simulated with the space bar on the keyboard (rifle) which fires bullets at a deer running across the screen. The settler may select the degree of perception and eye-hand coordination required to kill the running deer, or attacking bandits. Hailstorms, breakdowns, illnesses, injuries, and bandit attacks take their toll on the settlers and their resources. And, if their marksmanship or planning is inadequate, the family will not survive. (p. 36)

Although Oregon Trail is enjoyed by students and teachers alike, several noted authorities on thinking and problem-solving believe that students can solve and master a simulation such as Oregon Trail without developing effective problem-solving skills (Bransford, Stein, Delclos, & Littlefield, 1986). Bransford and his colleagues argue that decisions made in many simulations can be based mainly on trial and error guessing rather than on systematic analysis of the available information. The danger that simulations will encourage trial and error responding is increased by the fact that, initially, students have very little information about the simulations and hence are reduced to guessing. Bransford et al. argue that a more effective procedure would be to teach information-gathering skills by first helping students consult external sources of information that could assist them in making more rational decisions during the simulations.

Woodward, Carnine, and Collins (1986) used the approach advocated by Bransford et al. in a series of simulation activities in health-related areas. They randomly assigned subjects to either a simulation group or a conventional instruction group. Both groups received initial instruction in health-related problem-solving skills. The simulation group then received additional instruction using a computer simulation that consisted of (a) initial modeling of the problem-solving routines, (b) guided-practice using simulation games, and (c) independent practice using simulation games. The conventional group received review activities presented by a resource teacher.

The results of the study indicated that the simulation group was superior to the conventional group on measures of problem solving in the areas of diagnosing health problems, prioritizing them as to their effects on a persons longevity, and prescribing appropriate remedies.

Conclusions

Computer simulation can be used to extend the boundaries of the traditional teaching environment in a safe and cost-effective manner. Although computer simulations provide the student with disabilities with learning opportunities often not possible in traditional learning environments, some caution must be observed. As Bransford et al. point out, people often fail to use appropriate concepts and strategies because they do not realize that this information is relevant. Teaching methods that bridge relevant pieces of information must be be used to increase the probability that appropriate inforamtion will be used in improve decision making and problem solving through computer simulations. Although it appears that simulations may produce improved problem solving, this is likely to occur only when prior information is provided and can be used as part of the simulation.

Computer-Managed Instruction

The successful planning and management of instruction for mentally disabled student is based upon sound decision-making. Making successful instructional decisions requires that for each individual student a teacher must know when an instructional plan should be changed, as well as what kind of change must be made. Unfortunately, most teachers have not been trained adequately in the decision-making process. As a result, the act of making decisions is often uncounscious and arbitrary (Shavelson, 1973, 1976).

In recent years, the technology of decision-making has been improved through the use of data-based instruction (DBI) procedures. DBI procedures employ regular monitoring of students' performance under different instructional programs. The purpose of this monitoring is to provide a data base from which individualized instruction programs can be developed empirically. Using data-based instruction procedures, teachers (a) select long-term goals, (b) design measurement systems that correspond to those curricular goals, (c) routinely monitor student progress toward the goals using the measurement systems, (d) use the database to evaluate the effectiveness of the educational program, and (e) modify instruction as needed to ensure goal attainment (Fuchs, Fuchs, Hamlett & Hasselbring, 1987).

Research on the effectiveness of data-based instruction has indicated that this methodology is quite promising for improving student achievement. For example, Fuchs and Fuchs (1986) conducted a meta-analysis of 21 controlled studies that evaluated DBI procedures. The results of this analysis indicated the use of DBI procedures significantly increased the academic achievement of students whose teachers used these procedures. From these findings, one can expect that students whose instructional programs are monitored using DBI procedures achieve significantly more than students whose programs are not monitored using a DBI approach. A secondary finding of this meta-analysis was that when teachers were required to employ specific data-based decision rules, student achievement was greater than when data were evaluated using teacher judgement. Further, when data were graphed, effect sizes were greater than when data were simply recorded.

Fuchs and Fuchs concluded from their meta-analysis that the use of DBI procedures within special education reliably increase student academic achievement and that the effects may be enhanced when teachers use specific data-based decision rules as well as graphed data displays. Despite the apparent effectiveness of DBI procedures, all indications are that teachers are reluctant to employ them. In a national survey of LD teachers, Wesson, King, and Deno (1984) found that, although teachers believe that DBI procedures are effective, they do not use the methodology because it is too time consuming.

Computer-Based Monitoring

In an attempt to make data-based instruction less time consuming and easier for teachers to implement, a number of developers have proposed the use of microcomputers for implementing DBI procedures (Fuchs, Deno, & Mirkin, 1983; Hasselbring & Hamlett, 1985; Walton, 1986; West, 1984). Basically, these monitoring programs have been designed to assist teachers in storing, graphing, and analyzing student performance data. One such computer program that has been used successfully in special education is AIMSTAR.

AIMSTAR

AIMSTAR is an integrated set of computer programs that are designed to assist teachers in storing, graphing, and analyzing student performance data. To use AIMSTAR, the teacher creates a student data file. Descriptive information about the student's instructional program, the program objectives, and teaching procedures are included. Following each teaching session, the teacher enters student performance data into the computer. For example, the number of correct and incorrect responses exhibited by the student and the amount of time required for the student to complete the trials. AIMSTAR then stores this information, allows the teacher to graph the student's data, apply data-based decision-rules, and produce a printout giving the status of the student's instructional program with recommended changes when appropriate.

It should be noted that AIMSTAR does not eliminate the need for teacher intuition and judgement in planning instruction. Rather, it supplements teacher judgement by providing additional empirical data and analytic procedures. Special education teachers using this technology are able to respond more flexibly and effectively to changing student needs and produce greater student growth through this use of technology.

SUMMARY

In this chapter we have provided a discussion of effective computer applications for learners with mentally disabilities. We have attempted to make this chapter different from most others by focusing on applications that have a demonstrated empirical base. All of the applications described in this chapter have shown potential for enhancing the delivery of instructional services to learners with mild disabilities. It must be remembered, however, that the use of microcomputers will contribute to the needs of learners with mild disabilities only when the strengths of the technology are capitalized on and the inappropriate applications are minimized.

Although schools are purchasing computers in large numbers, there are still too few computers to allow computer-based instruction to be an integral part of every learner with a mild disability's education. Given this as a reality, we would like to close with two important principles that should guide your use of microcomputers with this population. The first principle is that computers be used for presenting information that cannot be duplicated by less expensive means. Although this may seem intuitively obvious, many of the current uses of the microcomputer are no different than activities available in books or other printed forms. In this chapter we have attempted to present applications that, for the most part, capitalize on the unique features of the computer. The second principle is one of educational priority. Although there are many areas in which students with mentally disabilities need instruction, a tool as expensive and potentially powerful as a computer should be focused on the most important needs first. Thus, in combination, these principles suggest that not every student should be provided with computer-based learning and that many of the latest computer fads should be bypassed in favor of more well established learning programs. Although focus on more complex academic skills may be more exciting and intellectually challenging for teachers, the best research suggests that the most powerful and immediate impact on the learning of students with mild disbilities is through the use of computers to develop mastery and fluency of basic academic skills.

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Chapter Eleven

Creative Drama

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OVERVIEW

While all students can benefit from drama activities in the classroom, creative drama's unique avenues for learning are especially suited to students with mental disabilities. Opportunities to exercise individual creativity are coupled with the social interactions of cooperative group work in a process that is enjoyable for all. Drama as an educational technique accommodates individual differences by allowing students to express themselves uniquely in non-competitive, success-oriented situations.

Some special educators working with students with mental disabilities have certain degrees of drama experience in their backgrounds. While training in drama and theatre is a desirable feature, of course, a teacher's willingness to experiment can be much more important toward successful incorporation of creative dramatics in the classroom. As with other content areas, tasks need to be broken down to their smallest units with sufficient time allotted for students to accomplish each stage. This chapter provides a basic framework for using creative drama to achieve a wide range of objectives, including enhanced communication skills, discipline and teamwork, self-concept, and creativity.

BASIC CONSIDERATIONS

From the beginning of separate education for students with mental disabilities, drama techniques such as movement exercises, games, structured play, role playing, and sociodrama have been employed to expand environments and increase experiences of these students. Historically, the goals of these activities have been largely therapeutic and unrelated to the art form from which they are adapted. More recently, however, creative dramatics has been successfully used in special education classes to pursue artistic, personal, and educational goals. Several texts (Gillies, 1973; Lilley, n.d.; McCaslin, 1984; Shaw & Stevens, 1979; Shaw, Stevens, & Parks, 1981; Theatre Arts for the Handicapped, 1983) offer direction for special educators who are either beginning or extending their work in creative dramatics.

Anyone who works closely with young people cannot help but be aware of their dramatic propensities. Just as children crawl before they walk, children need to play before they assume adult responsibilities. Through play, children experiment with new situations, learn to understand the world around them, and enjoy themselves all at the same time. Creative drama channels this play energy into the dramatic elements of movement, sound, characterization, and dialogue to promote growth and learning. A creative drama leader assists individuals to explore and communicate ideas and feelings. Additionally, mathematics, science, reading or other curricular areas can provide starting points for creative dramatics activities. Arts for Learning (1983) and McIntyre (1963) present concrete ideas for using drama to stimulate and direct other content areas of instruction.

Creative drama differs from--and is often confused with--other theatre activities. A committee of Children's Theatre Association of America (recently changed to American Association of Theatre for Youth) defined creative drama as "an improvisational, non-exhibitional, process-oriented form of drama in which participants are guided by a leader to imagine, enact, and reflect upon experiences, real or imagined" (Rosenberg & Prendergast, 1983). Although it may result in a presentation to an audience, creative drama begins without a script, pre-set plot, or stage directions. The objective is to promote growth and development of the participants, not to put on a successful performance. Although participation in creative dramatics is certainly therapeutic, the process does not strive for therapeutic goals. Drama therapy, as practiced by trained therapists registered with the National Association for Drama Therapy, differs in both content and intent from creative drama. Because creative dramatics does not depend on artistic achievement or therapeutic outcomes, teachers without specialized training as theatre directors or therapists can readily and safely become involved.

BEST PRACTICES

Students' activity in creative dramatics is never judged as wrong; each person's contribution is accepted and respected as an expression of individual creativity and imagination. Since the process begins without any pre-set direction or outcome, all movements and sounds are automatically correct. As a result, there is security for all participants. Perhaps the most important rule for teachers to follow is that they should not impose structure or expectations on the activity, avoiding all negative evaluation.

The Teacher as Leader

The teacher working in creative dramatics is called a "leader," whose primary responsibility is to provide an atmosphere where learning can take place. A cooperative style and an open attitude is the key, and is far more important than any specified knowledge or training. The leader must insure that all participants become involved and that their contributions are accepted without challenge or criticism. Respect for each person's contributions is essential. The leader is a member of the group, supplying support for activities from within. While the leader defines boundaries of the performing space (the whole classroom, or a taped off area) and initiates the activity, the ideas, direction and development of the dramatic activities come from the students.

The Creative Drama Process

It is best to begin a creative drama exercise in a gradual way, perhaps by using a familiar activity. Take a situation where students need to move, such as lining up for lunch. Ask them to line up as elephants, and line up (as an elephant) with them. Begin to see who does what, how they do it, and how you feel participating with them. Expand to improvisation (composing without preparation)--do something as an elephant. Explore the space in which you are working. See the objects in your space in a new way. Feel objects with the back of your hand, simulating the way an elephant feels with the thick skin of his trunk. Alter the lighting by turning off lights or pulling shades. Introduce sounds, such as music or unusual noises. Add props such as boxes to walk around or through. Crumple paper on the floor, first as quicksand to be avoided and then as the only solid ground to walk on. Perhaps an elephant has the hiccups, needs to scratch an itch behind the left ear, or is looking for food to eat.

The next step is group activity, which integrates the individual creative efforts of the students. Participants continue to do their own thing, without imposed structure or threat of criticism, yet they do so as a group effort that creates a whole. By working individually with assured success, students express their individuality, explore creatively, find pleasure in the activity, and develop self-esteem. When group work is added to the process children learn experientially how to work cooperatively and to get along with others. Social skills develop and mature in a safe, success-oriented atmosphere.

Begin group work in twos and threes. Three elephants must get through the quicksand together. They must help each other because one of them is too afraid to move or has a bad cold and is feeling ill, or can't see the obstacles. Let these small groups form and reform at will with the leader always part of the activities. As students become comfortable working with a partner or partners expand the groups. Now half the elephants are on one side with the other half trying to keep them from crossing the space. Now the African elephants with their fan-shaped ears are needed to help the Asian elephants conceal their identity from a hunter looking for Asian elephants. Eventually, the groups merge into one unit working together on a common problem.

Vocalization is the next step. There may be sounds and words from the students in activities leading up to this point, but as confidence, safety, and trust are established the leader should start encouraging all students to vocalize. Often, this is most safely initiated in a group setting with sounds. Sounds, as opposed to words, allow verbal and nonverbal, shy and outgoing students to participate equally. If some students are still reticent or unable to participate, encourage them to add a sound within their capabilities with which they are comfortable. This might be a shuffling of feet, a tapping of fingers, or a noise using an orthopedic appliance.

Eventually, each student or small group of students can be encouraged to create different sounds. Hiss, roar, click, stomp or any other sound, are equally valued and appropriate. The leader or various students can then direct the sounds to create patterns. If able, the class can assign sounds to characters: elephants who are babies or wise old leaders, ill or healthy, angry or frightened. Sounds can also be created for the environment, such as strong winds or the noises of other animals. A story can then be created which fits the sounds. As needed, the leader can help guide the creation of the story, possibly following a known plot from an existing story or play, until the participants create their own directions for the action.

With the participants physically and vocally involved and working together the dramatic activity can lead to fully developed improvisations that have a beginning, a middle, and end as a conflict is presented and resolved. Let's return once more to the elephant example. At the beginning, let's say, a group of Asian elephants who are peacefully going about their lives learn that there is danger; a hunter is after them. They need to ask some nearby African elephants to help them hide. How can we distinguish Asian from African elephants? Do they move differently? Do they make different sounds? Since elephants can not speak, how will the Asian elephants communicate their plight? How can the African elephants protect the Asian elephants from the hunter? Surround them so they are hidden? Disguise them somehow? Create a diversion? To develop the characters and solve the problem, the elephants must work together, probably using a combination of solutions presented by group members. As one of the elephants, the leader helps to solicit and to draw out ideas from the others.

Once the elephants develop their strategy for protection, a heightening of the conflict can occur by introducing a crisis. Perhaps an Asian elephant sneezes or trips and falls, potentially exposing the elephants being hunted. This danger may be the result of movement or sound emerging from the participants, or the leader might need to be the one who makes a conspicuous noise or movement. At the same time, then, another adult or a student taken into confidence suddenly appears in a hunter's cap. The dramatic climax is now at hand. What will the elephants do? They have nowhere to run to, and they can no longer hide. Will they try to trick the hunter? Perhaps they can direct his attention somewhere else? Can they get him to give up his rifle? Maybe they can scare him? Is it possible to get him to change his ways? Might he be convinced to become a friend to the elephants? By resolving this challenge, the participants complete the drama. By working together and using the contributions of all members, they are able to save the day and return to their peaceful existence.

The basic steps of creative dramatics, beginning with simple movements and proceeding through a complete dramatic improvisation, are contained within the foregoing elephant exercise:

1. Define a basic movement.	Line up as elephants.
2. Add improvisation.	Explore the environment, avoid quicksand, hiccup.
3. Form small groups.	Move together, discover one another's differences.
4. Introduce a problem.	Help each other through quicksand.
5. Combine the groups.	All elephants work together.
6. Add conflict.	A hunter is looking for Asian elephants.
7. Introduce vocalization.	Make elephant sounds, separating ages and types.
8. Develop a complete improvisation.	Seek protection from the hunter, confront his arrival, and resolve the conflict.

Initiating Creative Drama Exercises

Ideas for creative drama must come from the class and be of interest to the students or they will not elicit interest, enthusiasm, and active involvement necessary for success. If the characters and conflicts they face are too simple, boredom quickly settles in. If too complex, frustration results. Elephants confronting a ruthless hunter will not capture the imagination of all groups.

Additional ideas for creative dramatics are limitless. Robots, for instance, can be created. Perhaps each can perform only one sort of task. Can we discover what that is? How can we get two of the robots to combine their functions to create a third? Might a group of robots try to take over the world? How can the humans stop them? Participants can become animals and machines, real or imagined people, or objects we see every day. The conflicts they encounter can be close to home or safely removed from the students' own personal needs and social interactions.

Creative dramatics is often most valuable when its characters and situations arise from other curricular areas. A mathematics problem, after all, often poses a conflict that must be understood and resolved. Groups of students can be added to, subtracted from, divided, or multiplied. Perhaps they need to trade a certain amount of "gold" for each of the three sections of a treasure map. In response to a science lesson, participants might change from ice to water to steam. Let's say those who are ice want to convert to water. Could they get together with the steam people who have a similar desire? A language lesson can be reinforced with characters who can make only one sound each. "Tuh, tuh, tuh," says one student, imploring his fellows to find objects around the room that start with that sound. They, in turn, point to "table," "trash" can, his own "toe," and the "teacher." As a variation on the exercise, students might create a "tent" to sit in, a spinning "top" to play with, or a "tree" to climb. Equipped with only the beginning or end sounds of words, students can search for another person with whom they can form a word: "pen" meets "sul," "pay" meets "per," and so forth.

Personal interactions, social situations, and circumstances that may occur on a job offer excellent sources for improvisations. One character doesn't seem to be liked by the group. Why is that? What can we do to help her? Another feels like a complete failure; how can the group help him to feel successful? A third is applying for a job. What questions should we ask her to see if she is qualified? In these situations the techniques of sociodrama are often used. Whereas in creative drama the teacher (leader) participates within the students' own resolution of a conflict, sociodrama calls for the teacher to direct desired outcomes from outside the group through discussion and role playing. Sociodrama generally involves more discussion, and outcomes are controlled more firmly by the teacher.

When improvisations grow from curricular or social concerns, they provide experiencial reinforcement for other teaching techniques. Educational television and other media have long used animation and dramatizations to add interest and enjoyment to their teaching. Creative dramatics takes this one step further by adding participation, personal exploration, and social interaction to the process.

Controlling Student Behavior

Well planned and flexibly guided improvisations generally sustain the interest and cooperation of the students but even the best efforts can get out of hand. The leader needs to control inappropriate behaviors, but when possible, this control should be exerted within the context of the activity. Jennings (1973) presents excellent ideas to help leaders maintain control without sacrificing the necessary freedoms and permissions of the exercise. In one cowboy improvisation with a group of speech students, the pupils began to get out of control. Jennings became the sheriff and shot them all down. That was not the end of the improvisation, however, as one of the students whispered to the sheriff to bury them and then to say prayers. After the "funeral" was complete, the group arose and became ghosts haunting the sheriff. Another technique used by Jennings and many other creative dramatists for control as well as changing focus or pace is a sound cue which has been introduced to the

225

students ahead of time. When the cue is heard, all action stops. The cue can be simply the word "freeze" or the beat of a drum. This type of cuing is very helpful in creative dramatics and should be introduced early in the group's experiences.

Warm-Up Exercises

Before beginning creative dramatics exercises it is helpful to take a few minutes for relaxation and warm-up exercises. Professional actors know the value of these techniques and use them consistently. Leaders find that helping the group to relax and warm-up provides a transition from preceding activities and stimulates involvement in the creative process. Numerous activities are available, including stretching and movement exercises, group improvisations, pairing off to mirror another's movements, and so forth. Begin with simple movement and vocalization and gradually work up to the point at which the new lesson is to begin. Several of the texts listed at the end of this chapter contain excellent relaxation and warm-up ideas. Theatre Games File by Viola Spolin (1975) contains hundreds of warm-up exercises especially suitable for disabled individuals, as well as ideas for initiating creative dramatics activities.

Performing for an Audience

A natural progression of dramatic activity is toward public performance (i.e., theatre). However, theatre performance implies a prearranged art form, whereas creative dramatics is a spontaneous art. Sometimes it becomes advantageous to move creative dramatics participants into a situation with an audience. It might be that one lesson develops so exquisitely that it deserves to be duplicated and shared or that the students are at a stage where they can benefit greatly from sharing their accomplishments. Preteens and teenagers, especially, crave constant recognition. Further, the motivation to be in a play can have the added benefit of decreasing behavior problems.

An informal audience might be found in the class next door or from the school staff or parents of participants. A more formal audience demands a more formal performance, but this may not be essential to provide the students with the rewards of sharing. Various sources (Performance Workshop Project Guide, n.d.; Schattner, 1967; Schmitz, n.d.) contain information specifically relevant to peformances by individuals with mental disabilities. Books on puppetry (Astell-Burt, 1981; Champlin, 1981) can also be particularly helpful for initial performance experiences. The use of puppets allows students to shine, even when they cannot speak for themselves or are afraid of risking personal exposure in performance.

Opportunities for persons to perform in theatre productions outside classrooms and for broader audiences have increased considerably within the past decade. The "Can-Do" theatre of Spokane, Washington, for instance, annually involves more than fifty disabled and non-disabled elementary students as performers in a production. The "Rainbow Company" children's theatre of Las Vegas, Nevada, has integrated youths with mental disabilities into touring productions that have received critical acclaim. As adults, talented persons with mental disabilities tour with groups such as "Access Theatre" of Santa Barbra, California, and "Theatre Unlimited" of San Francisco. "Famous People Players" of Toronto, Canada, is made up of puppeteers with mental diasbilities who tour as paid professionals. While a career in professional theatre is not feasible for most of us (with or without a mental disability), the possibilities for persons with mental disabilities to become involved in theatre are not limited only to classrooms or other sheltered environments. Creative drama, then, is not only a means of instruction toward various expressive and creative goals; it is also an opportunity to begin participating in an increasingly accessible art form.

SUMMARY

Creative dramatics provides opportunities for students with mental disabilities to develop and practice basic skills in concrete ways and to work with others in a non-threatening atmosphere that stimulates aesthetic and creative abilities. It is an enjoyable activity that can reinforce lessons from other curricular areas while introducing students to a performing art.

The teacher, as leader of the creative dramatics exercise, participates as a member of the group, insuring that all are involved. Students and teacher alike develop characters who interact with one another, facing and resolving conflicts that arise. While the teacher initiates the exercise and introduces conflicts, the outcomes are determined by the students themselves, improvising solutions to challenges that arise.

Ideas for creative dramatics come from social situations, personal problems, career possibilities, other curricular areas, and pure fantasy. Through creative play, the students participate in a learning process that simultaneously engages the mind, the body, and the imagination.

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Chapter Twelve

Music

Kate Gfeller

OVERVIEW

Listening to music is closely related to cognition, since it requires careful attention, recall, and discrimination. Because attention and recall are often problematic for students with mental disabilities, they may lag behind their age-group peers (Grant & Share, 1985). Therefore, shorter, simpler sound sequences or discrimination tasks should be initially introduced. The student should obtain mastery of gross contrasts before progressing to more complex, subtle stimuli.

Unfortunately, potential growth in music education is sometimes hampered by well-meaning educators who have erred in one of two ways. First, some educators may underestimate the academic skills required within the typical music class. As a result, students with mental disabilities may be integrated into music classes in a somewhat haphazard manner, without the necessary adapatations and educational support needed to foster active, meaningful participation.

In contrast, other educators have underestimated the musical sensibilities of students with mild disabilities. As a result, these students have been subjected to childish, unattractive music activities which not only fail to motivate, but also fail to foster growth and development.

Successful participation in music requires careful planning by the educator, based on an understanding of both the requisite skills for participation and the student's capabilities and limitations. This knowledge facilitates appropriate selection of methods and materials that are suitable for the student's developmental capabilities, while at the same time still being engaging, challenging, and age appropriate.

This chapter will discuss the capabilities and defects of the student with mild mental disabilities in skill areas prominent within the music classroom and will suggest general accommodations necessary for successful participation. Specific examples of best practices will be addressed in view of differing needs across the grades from kindergarten through the secondary level.

BASIC CONSIDERATIONS

While some may entertain the belief that children who are mentally disabled are naturally gifted in music, research has shown that these children generally earn lower total scores on music aptitude tests than non-handicapped children of the same chronological age (Bruscia, 1981; McLeish & Higgs, 1967). However, it is important for the educator to look beyond an overall level of functioning, since music, like other academic skills, is made up of a complex combination of behaviors. In determining necessary adaptations, educators should consider specific components that contribute to overall musical participation. Four types of behavior that play a prominent role in the music class are: mental activity, communication skills (including active listening and singing), motor skills, and social/behavioral skills.

Mental Activity

Mental activity is an integral part of many basic tasks within the music class, such as establishing and maintaining attention, following directions, recalling lyrics and melodies of songs, learning concepts, and discriminating. While students who are mentally disabled may show capabilities equal to or greater than non-handicapped peers in tests of simple music perception, in tests requiring memory or discrimination, they will typically demonstrate lower than average proficiency (McLeish & Higgs, 1968). In general, students with mild mental disabilities will show musical sensitivity (ability to receive and respond to musical stimuli) at a level comparable to their mental-age (as opposed to chronological) peers. Consequently, they may take longer than their age-group peers to learn song lyrics and concepts such as high and low, and fast and slow; there may also be greater inconsistency or inaccuracy in responses and an overall slower rate of learning (Bruscia, 1981; Shuter, 1986; Gfeller, 1987). Because of these differences, both qualitative and quantitative adjustments are necessary in the types of materials selected as well as the teaching methods utilized.

Motor Skills

Although the student with mild disabilities is less likely to exhibit the serious physical anomalies associated with severe and profound disabilities, motor skills may nevertheless lag behind those of peers. There are limited data concerning motor characteristics specific to musical performance (Bruscia, 1981). Peters (1970) reported lower proficiency in imitation and clapping, but added that these skills improve with maturation. Malpasse (1963) noted that children who are developmentally disabled demonstrate less competence in motor tasks requiring precision, quick reaction, and coordination. According to Malpasse, the child with mild disabilities lags approximately three years behind non-handicapped peers. This lag in motor development will hamper the child in a host of musical activities such as playing instruments, movement, clapping, and imitation.

Communication

The student with mental disabilities will experience communication difficulties in music similar to those experienced in other academic areas. For example, the child may have difficulty following complex directions or written instructions. Successful accommodations used in other classes can be utilized in the music class as well. There are some particular types of communication that are unique to music, however. They include the ability to listen to musical (non-verbal) information and to engage in expressive communication through singing.

Social/Behavioral Considerations

Successful participation in music requires not only mastery of musical tasks; the child must also fit within the social milieu of the classroom. Social and behavioral limitations of students will not magically disappear during music class. In fact, the predominance of group activities which require cooperation, turn-taking, sharing, and overt behaviors such as singing or playing instruments places special social demands on the student. Adequate structure, organization, and proper facilitation are needed in order for the child to interact in an appropriate manner.

The following section will include general as well as grade level specific accommodations that address these four basic areas.

BEST PRACTICES

Accommodating Mental Limitations

Because of the cognitive limitations associated with mental disabilities, it is important to select musical materials and teaching methods that are appropriate for the developmental level of the student. It is not enough to simply present information at a slower rate. In addition, the educator faces the challenge of identifying materials which are not only developmentally appropriate, but also age-appropriate and attractive in style and topic.

Appropriate teaching methods are also important to successful learning. The student's slower rate of learning can be accommodated by a) breaking a larger task into smaller sections, b) providing frequent, short rehearsals as opposed to infrequent lengthy practice, and c) by providing adequate repetition for mastery. This need not take the form of tedious rehashing of one activity. Rather, repetition refers to multiple varied experiences with the skill being learned, not necessarily repeated performance of the same activity. Mastery can be developed by exposure to a variety of stimulating activities which emphasize the same objective. For example, at the elementary level, the concepts of "fast" and "slow" might be demonstrated and practiced in a variety of activities such as playing rhythm instruments, through movement activities, or through visual aids. At the secondary level, this same objective might be covered in greater depth by having the students identify popular music or social dance steps with a "beat" of different tempo.

The presentation of information is as important as the rate of learning. The learning environment should be carefully constructed to reduce the likelihood of distraction (Bruscia, 1981). Further, the instructor should draw attention to the most important part of the stimuli being presented. For example, if the goal is to learn the lyrics, they should be presented initially without the distraction of complex harmonies or rhythms. Similarly when teaching a particular musical concept such as rhythm, the rhythm should be presented apart from melodic or harmonic material, gradually adding other accompanying features (Bruscia, 1981). Instructions should be short and clear and given often as possible; each step should be paired with a demonstration and opportunity to try the task.

These types of adjustments are made quite easily in a special education setting where all students experience difficulties in learning. However, in a regular music class filled with learners of average or above average rate of learning, it is more difficult for the music educator to accommodate students who are mentally disabled. The following strategies can be used to help ensure some level of success.

1. Selection of developmentally appropriate materials requires a careful analysis of the musical activity planned for the group. The instructor should identify portions of the activity that are less demanding in terms of recall, language skills, or problems solving. The overall difficulty of the task might be reduced by selecting only a portion of a song, or by simplification of melody, rhythm, or vocabulary. Ideally, the student with disabilities might be paired with a mature and empathetic student who is willing to provide some support in learning the part.

2. The following strategies can accommodate the student's slower rate of learning:

   a. Within the classroom environment, provide adequate modeling of the desired task outcome through many teacher and peer demonstrations. More exposure and rehearsal than is possible in the classroom may be necessary, however, for total mastery.

   b. Additional rehearsal time can be taken outside the regular classroom time by providing cassette tapes or instructional materials for review in the home or during free time. The instructor can enlist the support of family members, teacher aides, or perhaps students in service organizations (such as the National Honor Society) who might tutor as a part of a service project. By providing the student with more frequent and spaced rehearsals, they will be more adequately prepared to participate in the classroom events.

   c. Cooperation between the special education staff and music educator can be very helpful. For example, some of the new vocabulary words found in the music class might be introduced or reinforced in the special education room. This cooperation can go both ways, of course. For example, the social skills being introduced in special education can be re-emphasized in the music setting.

Accommodating Motor Limitations

Because some mild mental disabilities are accompanied by lags in motor development, the following accommodations may be helpful in integrating the special learner:

1. Provide the young student with physical assistance or prompts.

2. Reduce the level of precision required for playing instruments or for movement. For example, it takes less precision and eye-hand coordination to hit a large drum surface than to play a small xylophone bar with a long-handled mallet.

3. Simplify the rhythm or movement task. For example, instead of the student playing a complex, syncopated rhythm pattern that is several measures long, they might be assigned a simple, straight-forward pattern that repeats after one or two measures.

4. Accommodate slower motor response by playing selections at an overall slower tempo, or by assigning a part that requires less frequent physical action.

Accommodating Communication Limitations

Listening

Listening to music is closely related to cognition, since it requires careful attention, recall, and discrimination. Because attention and recall are often problematic for the student with mental disabilities, they may lag behind their age-group peers (Grant & Share, 1985). Therefore, shorter, simpler sound sequences or discrimination tasks should be initially introduced. The student should obtain mastery of gross contrasts before progressing to more complex, subtle stimuli.

Singing

Students with mild disabilities respond positively to singing activities, with musical progress at a rate similar to progress in other academic areas (Carey, 1958). Teaching methods should approximate those used with non-handicapped students. However, the instructor should proceed at a slower pace and provide more opportunities for repetition in order to attain mastery.

Some basic steps can facilitate successful participation in singing activities:

1. Select songs that contain relevant, meaningful content. The songs should be within a level of complexity appropriate for the student, but should contain topics of interest and stylistic features typical for their age group. For example, adolescents with disabilities tend to enjoy the same styles and topics in music as their non-handicapped peers. Early childhood songs, for example, would be both insulting and uninteresting to the student at the secondary level.

2. Select songs of a reasonable length, or select shorter segments from longer songs.

3. Select songs which have adequate redundancy or repetition. For example, some songs return to a short, familiar chorus, again and again. Other songs have a great deal of repetition within the lyrics or melody. This type of redundancy facilitates recall. Songs with redundancy are not found exclusively within the musical repetoire of young children. A careful perusal of traditional or popular music appropriate for secondary level students will show that repetitive songs are also available to the older student.

4. Select songs with appropriate difficulty of vocabulary or substitute words where necessary. New vocabulary words should be explained and related to familiar concepts or situations.

5. Teach lyrics by rote if reading skills are not adequately developed. If written lyrics are used, make sure that the child has enough previous exposure to the lyrics to read them readily.

6. Provide visual aids to assist recall of important parts or sequential action within the lyrics. For example, if a song tells a story, the class members might prepare a sequence of pictures to accompany the song. These can be displayed in the room.

In considering these strategies, it is important to keep in mind that some additional support may be required if the student is integrated into the regular music class.

Encouraging Social-Emotional Development

Students with mental disabilities may fail to learn social behaviors incidentally as readily as their non-handicapped peers. Therefore, direct instruction is important in order to help the child master the social skills required in the musical activity:

1. Provide adequate structure and clear expectations for behavior. Present rules in a clear, simple fashion; demonstrate and repeat them often until they are internalized.

2. Incorporate behavioral cues and management techniques from other academic areas in order to aid consistency and generalization.

3. Ritualize verbal and physical cues for paying attention, sitting quietly, or for careful listening (Bruscia, 1981).

4. Provide direct instructions, physical demonstrations, and opportunities for practicing appropriate social behaviors. For example, the student may need specific directions on how to hold instruments, or how to stand during a choral performance.

5. Provide frequent, sincere reinforcement for effort and achievement. Praise should be honest and informative. For example, the student will learn more about the teacher's expectations with specific praise such as "I like the way you are holding the drum quietly," rather than through general comments such as "Great!"

Social development should be a major consideration when selecting the appropriate placement for the student (e.g. integrated in regular music class as opposed to resource room music). In instances of notably lower social functioning or distractibility, it may be necessary to integrate the student for only part of a class hour; or it may be best to have the student join a smaller group of mental-age peers where they can practice and develop adequate social skills necessary for subsequent integration with non-handicapped peers.

Related to social and behavioral concerns are self-esteem and emotional well being. Children with disabilities have often grown up expecting to fail (Cromwell, 1963) and, as a result, may have poor self-esteem and low motivation to participate or try new experiences. Therefore, it is important that the teacher design music activities and goals which are realistic, yet challenging for the student. New skills should be presented in a sequential fashion, attaining adequate mastery on each step before proceeding to more difficult skills.

In summary, the student with mild mental disabilities may exhibit particular cognitive, physical, and social limitations which require accommodation in order to realize successful integration in the music classroom. Unfortunately, limitations in the educational system or among personnel can also contribute to difficulties in integration. For example, in a recent survey of music educators in the state of Iowa, (Gfeller & Hedden, 1987) most respondents indicated that they have either had no training or just a few hours of inservice training in working with students who are handicapped. Therefore, the music educator may have little knowledge or experience concerning educational adapatations necessary for the student with mild mental disabilities. In addition, it is likewise common for special educators to have limited training in music instruction.

In such instances, team cooperation is critical. If the student is integrated into a regular music education setting, success is more likely if the special education staff provides the music educator with the following pertinent information: the student's limitations, capabilities, behavioral characteristics, and possible strategies to aid academic development and behavioral management.

While these general considerations are appropriate across educational levels, there are educational objectives in music education that change as students advance from elementary to secondary levels. The following section will briefly address practices that are specific to the lower elementary, upper elementary, and secondary levels.

Lower Elementary

The lower elementary years are probably the least problematic in terms of integration toward academic objectives in music education. During this period, music education goals focus on exposure to music, and active, hands-on experiences. Awareness, response, and enjoyment far outweigh performance objectives during this stage. Music is presented in a concrete, experiential fashion, and musical stimuli tend to be simple and repetitive.

Typical activities in the lower elementary years include singing melodies of simple story or folk songs, moving to music with a variety of motor skills (marching, skipping, hopping, running, etc.), playing rhythm instruments, acting out story songs, and learning very basic musical terms. For the most part, the student who is mildly disabled can participate in these types of activities at a reasonable level of competence as long as the information is presented at a somewhat slower rate, along with adequate repetition and support.

Moreover, this stage is relatively easy to accommodate because there are several excellent resources which include musical activities and adaptations for special education or the regular music class at the elementary level. The annotated bibliography for this chapter lists a number of resources appropriate for the music specialist as well as the classroom teacher.

Probably the primary accommodations required at this level are in social and behavioral areas. Developmental lags in attentional skills and social interaction can make it difficult for the student to function appropriately within cooperative group activities. One possible accommodation is to have the student sit next to an aide who can provide some one-to-one attention and guidance. The educational team may also wish to evaluate the student's attentional capabilities and then have the child attend only a portion of the music hour. As the student matures, attendance can be extended.

Upper Elementary (Grades 4-6)

Integration into music at the upper elementary level requires greater accommodation than at the lower level for several reasons. Developmentally, non-handicapped students have passed from pre-operational to concrete operations, while the student with mild disabilities may remain in a pre-operational level of development. In short, developmental gaps may be more apparent, and a greater number of adaptations are necessary for the child to succeed both academically and socially in the music class. Educationally, the objectives in music are moving away from awareness and enjoyment toward mastery of specific skills and content. Typical activities include singing rounds of simple one or two part songs, playing recorders and Orff instruments, playing band instruments, folk dancing, learning to read musical notation and learning about the lives of composers. These types of activities include the following features which may present difficulties:

1. The musical materials used are becoming longer, more complex, and require greater recall or conservation. Students rely less on rote learning and more on reading both lyrics and special symbols such as musical notation.

2. Instrumental and movement activities require more extensive and precise motor skills.

3. There are increased requirements for group cooperation, consistent attending, and self-discipline.

Adaptations are necessary in the areas of musical materials, notational systems, motor requirements, and social or behavioral structures:

1. Musical materials. In order to accommodate the mental capabilities of the student, it may be necessary to simplify lengthy or complex musical materials. In addition to adapting length, musical arrangements can be selected or prepared that include less complex parts appropriate for the special learner:

    a. Some song melodies can be paired with a repetitive melodic or rhythmic motive (called an ostinato). For example, elementary level students often learn traditional folk songs and spirituals that can be arranged with an ostinato. In a song like, "Swing Low, Sweet Chariot", while one part of the class sings the entire melody, a second group can repeat an ostinato to the words, "Swing low, chariot, swing low chariot." The repetitive nature of this ostinato reduces memory requirements and eliminates the need to read lyrics (see Figure 1).

    b. Some traditional songs are arranged in a "call and response" or echo format. By placing the student who is disabled in the echo group, the memory and reading requirements are very limited. In both of these instances, the student will probably need the support of a peer group to sustain his part.

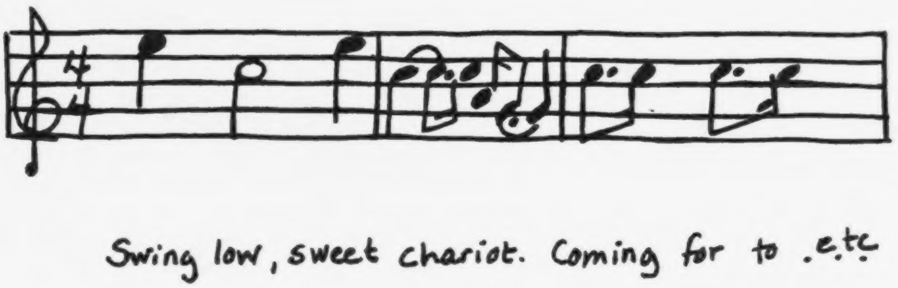
2. Notational systems. Traditional music notation may be difficult for the student with mental disabilities. Alternative systems can be employed to include these students in musical ensembles:

    a. Colored stickers or numbers can be placed, for example, on piano keys, harpsichord bars, and xylophone bars. This code can then be incorporated into music or placed with song lyrics. Successful use of these alternative notational systems will require instruction and repeated rehearsal. If it is too demanding for the student to make a series of fast changes, the student might be assigned to play only one or two notes (marked with one or two colors). Additional notes can be added as the student progresses.

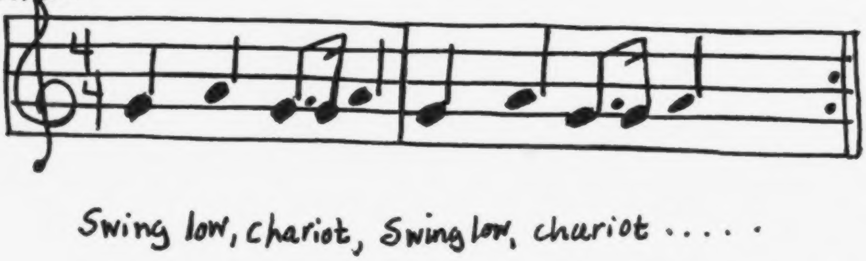
Figure 1

Example: "Swing Low, Sweet Chariot"
spiritual

Melody



Ostinato



b. Complex rhythm patterns can sometimes be taught by pairing them with familiar phrases rather than using traditional rhythmic notation. For example, a group of four eighth notes followed by two quarter notes can be paired with the phrase, "pepperoni pizza." Familiar words or phrases provide a simple mnemonic for remembering the rhythm pattern.

c. Simple rhythm parts can be taught through visual demonstration and adequate repetition.

3. Social considerations. By the upper elementary years, most non-handicapped students have developed skills in cooperation and can work effectively toward group goals. As the student with mental disabilities matures, their social skills will also develop, although regular and consistent guidance may be needed in these areas. The development of appropriate social skills will not only improve their participation within the music classroom, but will also pay dividends in their integration within the community at large.

Secondary Education

Integration at the secondary level is more challenging than at elementary levels for a number of reasons:

1. The non-handicapped student has entered the abstract world of formal operations, while the disabled student is still functioning more concretely. Consequently, the more abstract educational objectives common at the secondary level will be problematic for the mentally disabled learner.

2. Music at the secondary level includes more elective performance organizations (i.e. chorus, band, orchestra). Participation in these groups generally requires some level of competence in reading traditional notation, ease at reading lyrics (including even foreign languages), motor dexterity, and a high level of personal discipline as well as commitment to a group goal. Further, if the music instructor is under considerable pressure to produce groups of technical excellence and sophistication, he or she may be extremely hesitant to include a slow learner in the group and this instructor may need to be shown the reciprocal benefits of such an inclusion.

3. Socially, adolescence is a time of immense peer pressure. Fitting in is very important. Scapegoating or exclusion can be a problem for the student with disabilities.

4. The musical taste or preference of the adolescents who are disabled are likely to be very similar to that of non-handicapped peers. However, in order for them to play this music, it is often necessary to provide special accommodation and coaching. Adaptation of musical materials require a fair amount of musical skill as well as an understanding of the student's capabilities. The music specialist may have limited time to provide adaptive materials, as well as a limited understanding of the student's capabilities. Conversely, while the special educator understands student capabilities, they may have inadequate musical knowledge to accommodate this curricular area.

5. Unfortunately, there are few resource materials that appropriately address this age group. To some extent, this may reflect less frequent integration of the student with disabilities in elective music classes. However, it is also possible that the dearth of resources has contributed to the low instance of integration at the secondary level.

Resistance to participation in music may also come from those educators who feel the arts deserve low priority in the curriculum which tends to be vocationally-oriented. While it cannot be denied that vocational and social skills are critical to the independence of the student who is disabled, it is also important to consider the potential use of music in normalization and in the development of social and leisure-time skills.

While these concerns may seem insurmountable, through realistic and creative programming it is possible for the students who are mentally disabled to continue in satisfying music education at the secondary level. Several music activities which may be carried into adult leisure life include: (a) playing in ensembles with social instruments such as guitar, autoharp, or handbells; (b) developing music appreciation and social skills necessary for attending community programs; (c) singing in choir; and (d) social dancing such as folk or popular styles of dancing.

To some extent choice of musical activities and instruments should be guided by the capabilities of the student. However, social factors deserve consideration as well. In order to maximize the benefits of musical objectives beyond the educational setting, the instructor should consider the opportunities for musical participation in the student's community and select objectives accordingly. For example, if there are recreational music programs in the community which include guitar ensembles, but handbell choirs are not common, the guitar may be the better instrumental choice. Communication with the student's parents can also help to identify potential resources at home. For example, is there a guitar in the student's home? Are the parents willing to purchase a guitar if the student earns one through special assignments or chores?

Instruments such as guitars, autoharps, or handbells can be adapted relatively easily. In order to do this, the instructor needs fundamental knowledge of how to play the instrument, and the ability to select or arrange music that is relatively simple and repetitive. Many popular or traditional folk songs are based on very simple chord progressions with a great deal of repetition. It is also possible to simplify more complex songs, using only the most basic chord changes and extracting portions of the song. This type of adaptation requires the instructor to have some level of musical skill-either formal musical training or adequate personal experience in playing guitar, autoharp, or handbells.

Special teaching methods can also be used to reduce the level of motor and cognitive difficulty. While traditional fingering positions used in guitar can be awkward or difficult to learn, methods by Cassity (1977) and Krout (1983)--see annotated bibliography--offer special adaptations for learners with limited motor skills or recall. For example, Cassity's discussion of nontraditional guitar techniques describes a method in which the strings of a guitar are tuned to the notes of an E major chord instead of in the usual fashion. The student can then play the instrument without having to use complicated fingering patterns. Different notes are produced simply by placing the finger across (barring) different frets of the guitar. This simple technique is even used by some professional singers who want to play the guitar while keeping their long fingernails intact.

This type of open tuning can also be used in a cooperative group song. A simple popular or folk song can be arranged for two or three basic chord changes. Different small groups within the class can be assigned to be in charge of one special chord. The instructor can cue each group at their turn. This type of activity will require careful attention and cooperation.

Music appreciation is another musical objective appropriate for the secondary level. The instructor can introduce basic concepts of musical style, such as popular or classical, focusing on relatively concrete examples to illustrate contrasts. In introducing less familiar classical music, it may be helpful to select relatively short pieces which are based on a story line, or which have musical elements which imitate sounds in nature (for instance, Ferde Grofe's "Grand Canyon Suite"). Popular classical favorites like the "Nutcracker Suite" can be introduced with pictures of the ballet characters who play the nutcracker or the sugar plum fairy. In addition to teaching musical concepts, the students can be taught systematically correct dress and manners for attending different types of concerts. Attainment of these skills might be rewarded by planning a field trip to an actual concert in the community.

Social dancing such as simple square dancing, popular dancing, or ballroom dancing can be learned by breaking down more complex dance steps into repetitve forms. Adequate repetition will be necessary to master each motor skill. The students can also learn musical styles that are suitable for each type of dance, along with social skills required in each instance.

Whether the student is involved with social instruments, vocal ensemble, music appreciation, or movement, the accompanying social behaviors will be as important as the musical objectives. These types of activities require concentration, listening to others, taking turns, and following instructions. These are all social skills that can be developed as the student learns a healthy leisure-time skill. In fact, these skills should be taught as systematically and thoroughly as the musical skills themselves.

At the secondary level, appropriate placement for music requires careful thought. The students' capabilities and limitations should be assessed in view of the school's music program. One option is that musical instruction may be provided within the special education setting. In some schools, however, the structure of the music program may accommodate a special learner in regular music classes. For example, there may be several choral or instrumental organizations which are grouped according to skill level. Some individuals with good social skills and adequate experience and motivation in music may succeed in one of the less competitive musical ensembles if adequate support is provided, both by the music and special education staff.

SUMMARY

Music is a curricular area in which students with mild mental disabilities can develop musical and social skills that enrich their lives far beyond the years of formal education. Successful participation in music, however, will require accommodations for developmental lags in mental, motor, communication, and social behaviors. These limitations can be addressed through adoption of effective teaching methods which take into consideration the learning characteristics of the special student. In addition, musical materials should be selected which are not only developmentally suitable, but also stylistically attractive for the student's chronological age.

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Bayless, K.M. & Ramsey, M.E. (1982). Music: A way of life for the young child. St. Louis: The C.V. Mosby Company.

This book includes music activities for the young child from infancy through Kindergarten. Developmental growth in music is outlined, and general suggestions provided for each level of development. It includes a chapter on music for the exceptional child. Most of the songs are very simple, but many songs are notated musically, so it would be beneficial to read music in order to obtain maximum benefits from this resource.

Birkenshaw, L. (1982). Music for fun: Music for learning (3rd ed.). St. Louis: Magnamusic-Baton.

This reference provides many musical activities and music education objectives for the elementary level. Adaptations are suggested for special learners. There is also a thorough discography and reference list. This book could be helpful to either the classroom teacher or music specialist.

Bitcon, C.H. (1976). Alike and different: The clinical and educational use of Orff-Schulwerk. California: Rosha Press.

This text provides a basic introduction to Orff-Schulwerk, a common approach to music education at the elementary level. It recommends particular adaptations for working with mentally disabled students. While Orff activities can be easily adapted for the handicapped student, the instructor should have some basic understanding of Orff techniques to successfully facilitate and adapt these activities. In addition, some of the activities require special expensive musical instruments that may not be available within every school system.

Cassity, M.D. (1977). Nontraditional guitar techniques for the educable and trainable mentally retarded residents in music therapy activities. Journal of Music Therapy, 14, 39-42.

This article describes several techniques for teaching simple guitar arrangements to EMR and TMR students who find traditional guitar techniques difficult due to cognitive or fine motor limitations. The article requires a basic knowledge of how a guitar is played, how to tune a guitar, and knowledge of basic chord changes in folk style. This article could be helpful to the teacher working at either the upper elementary or secondary level.

Clark, C. & Chadwick, D. (1979). Clinicially adapted instruments for the multiply handicapped: A sourcebook. Westford, MA: Modulations Company.

The authors provide a large selection of adaptive percussion, string, and wind instruments for a variety of physical handicaps (i.e.

limited grasp or range of motion). This is a very pragmatic book for the teacher who works with physically handicapped students. Most of the recommendations are inexpensive and easily made.

Dickinson, P.I. (1976). *Music with ESN children*. Windsor, England: NFER Publishing.

This book summarizes a year long study in England with educators of educationally subnormal (mild mental disability) students who were assigned to teach music classes for these children. The book describes the musical knowledge taught to the children and the reactions of the teacher to this project. This book might provide support for the classroom teacher who must cover music skills without the assistance of a music specialist. The book covers school-age children, approximately 6-16 years.

Gilbert, J.P. (1977, February). Mainstreaming in your classroom: What to expect. *Music Educators Journal*, pp. 64-68.

This article is written for music educators who have little experience with or understanding about working with mentally handicapped students in the music classroom. The author emphasizes basic learning styles, behavioral characteristics, and some general recommendations for accommodating limitations. It does not include specific activities or "how to" information.

Graham R.M. & Beer, A.S. (1980). *Teaching music to the exceptional child: A handbook for mainstreaming*. Englewood-Cliffs, NJ: Prentice-Hall.

This book discusses mainstreaming and IEPs in music education. A brief description of mental disability is given, along with a few general recommendation for adaptations. The book is primarily relevant for elementary educational objectives in music.

Hardesty, K.W. (1979). *Music for special education*. Morristown, NJ: Silver Burdett Company.

The author outlines many adaptations necessary for successful music education of the handicapped. This resource has been designed to aid in selection and adaptations of appropriate materials from Silver Burdett Music, Early Childhood through level six. Therefore, it is most helpful as a guide to the music specialist who is working with elementary level groups either in mainstreamed or resource room music education.

Hoshizaki, M.K. (1983). *Teaching mentally retarded children through music*. Illinois: Charles C. Thomas.

This book gives examples of how to incorporate music with academic learning units. Basic information on equipment and musical materials are provided. The book focuses primarily on the trainable mentally disabled child in elementary school. Some of the principles could be appropriate for the mildly handicapped learner as well. This is very accessible to the classroom teacher.

Krout, R. (1983) Teaching basic guitar skills to special learners. St. Louis: Magnamusic Baton.

This "how to" manual gives a step-by-step description of how to teach guitar to special learners with poor recall or limited fine motor skills. The author provides a sequential approach to learning guitar skills, from very simple, one finger chords, to more complex patterns for the more advanced student. The book also demonstrates record keeping approaches for documenting educational progress. This book requires the instructor to have basic mastery of folk guitar, as well as a general knowledge of behavioral learning techniques. This book could span upper elementary and secondary levels.

Micich, A. (1980). Music with the handicapped: A reference guide. Des Moines: State of Iowa Department of Public Instruction.

This practical guide is designed to aid music educators who work with moderately to severely mentally disabled students. However, many of the activities and principles would be appropriate for the young students with mild mental disabilities. The book includes activities such as singing, listening, rhythm and movement activities, and leisure activities, along with recommendations for implementation and documentation of educational progress. This resouce could be utilized by the classroom teacher who has basic knowledge of musical notation.

Nocera, S. (1979). Reaching the special learner through music. Morristown, NJ: Silver Burdett Company.

This music resource includes a collection of songs along with suggestions and objectives for use with handicapped students. In addition, the book addresses non-musical skills such as motor, language, and social capabilities which interact with musical activities. The materials are appropriate for elementary aged children. Because all of the songs are presented in traditional music notation, some level of musical knowledge is needed in order to utilize this resource.

Schulberg, C.H. (1981). The music therapy sourcebook: A collection of activities categorized and analyzed. New York: Human Sciences Press.

This book is not geared toward music education objectives, but rather provides music activities appropriate for leisure and relaxation. Simple, clear directions are given for a host of activities such as music appreciation, musical ensembles, singing, musical games, and music with relaxation. This is a general resource for all handicapped groups of all ages, so activities appropriate for the mildly mentally disabled should be carefully chosen and adapted.

Wood, M. (1983). Music for mentally handicapped people. London: Souvenir Press.

This book is written primarily for the non-musician. It begins by encouraging the reader to use the skills that he or she already has in order to establish a music program. Recommendations are given for listening activities, writing songs, movement and drama with music and other music activities, primarily at the elementary level.

Chapter Thirteen

Oral Language: Developing Pragmatic Skills and Communicative Competence

Suzanne M. Robinson

OVERVIEW

Youngsters with disabilities are often expected to compensate for poor reading and writing skills through listening and speaking. Rather than taking notes or reading the textbook, students are told by their teachers to listen carefully and ask questions. Unfortunately, many students with disabilities have difficulty speaking and/or listening. Furthermore, some youngsters are unaware that there are communication techniques which would assist them in school learning that are more effective than those they use.

This chapter addresses spoken language as pragmatics. This is defined as the use of language in its social context. The focus of this chapter is the use of language for learning, particularly in school. A number of authors (Butler, 1986; Westby, 1984) have pointed out that such a focus changes the way one addresses language or communication difficulties. Rather than focusing on the acquisition of isolated language rules (acquisition of phonology, syntax, or semantics), a person concerned with communicative competence will focus on language comprehension, retrieval and recall of previously presented information, and general effectiveness in integrating language skills for the purpose of successful functioning in a classroom or other social context. Thus, our concern becomes whether or not a youngster is successful in a communication act (e.g., his or her language performance accomplishing the intent of the interaction), rather than examination of the correctness of the utterances in terms of phonology, syntax, or semantics.

The chapter is organized in the following manner. First, it provides an overview of the language demands of the school setting. Then, a model for communication skills is described and a discussion of potential oral language deficits within the pragmatic context follows. Listening skills necessary for success in the school setting as well as potential deficit areas are then outlined. The final section provides suggestions for developing effective intervention programs in the area of communicative competence.

Language Skills for Learning

If we look at spoken language as an integrated set of skills that youngsters use in school to facilitate learning, our interest must focus on their ability to comprehend what they hear and their ability to be understood when they speak. If our concern is in improving these skills, then we should focus on increasing their ability to comprehend and communicate.

Oral Language Demands of the School Setting

What are the language demands of the instructional setting? Students must listen to varied messages in many different settings within school. Students must be able to follow oral directions, comprehend lectures or extended discourses, often in large group settings with little opportunity to give the speaker immediate feedback on comprehension. Furthermore, the listening demands of the classroom increase dramatically as youngsters grow older. Researchers (Goodlad, 1984; Wilt, 1949) found elementary students were required to listen for over 50% of the school day. Others

(Moran, 1980) found that teachers in regular junior and senior high school classrooms talked for 80% of the time spent in verbal interactions in the classroom and that this discourse consisted of 75% lecturing and 25% questioning about subject matter content. Yet, teachers seldom presented advanced organizers to assist youngsters in listening more effectively and seldom modified their rate of speech so that youngsters would have an easier time taking notes. This represents an environment which might tax the listening skills of proficient students and possibly overwhelm youngsters for whom listening is difficult.

Oral language is also comprised of speaking. Speaking skills are necessary to ask questions, respond appropriately in instructional interactions, and further social contacts and relationships. Unfortunately, youngsters with disabilities may have difficulty in the role of speaker.

The language of school is intended to assist youngsters in the acquisition of cognitive and social skills. However, the language of school, which includes curricular materials, teacher-directed instruction, and peer interactions may not, in fact, accomplish this goal. Frequently there is a mismatch between the language demands of the classroom and the language ability of the student. Textbooks or curriculum content may assume some prior knowledge on the part of the student when it does not exist. Or, teachers may not be aware of effective communication skills, thus making it harder for the student to profit from instruction. Furthermore, the greater the difference between a child's life experience and the demands of the classroom, the more difficult it may be for a youngster to profit from the academic setting. Given this context, it is our responsibility as educators to not only increase the communication skills of our students, but to also provide the best possible match between student ability and the language environment of the school.

When youngsters enter school, they shift from the language of the home to the language of instruction. Nelson (1984) provided examples of how the language used in school may differ from the language of the home:

1. The language of the schools is frequently used to give directions and to control behavior. For example, a first grade teacher begins the day:

   All right, let's get back to your seats.
   Let's have our flag salute.
   Dedra, we're waiting on you, honey.
   Drew, forget how it starts?
   It starts with "I".
   Remember, you're standing up / tall and straight / and you look like a letter. (p. 163)

2. Teacher talk is frequently directed to attentional strategies, as this second grade teacher illustrates:

   Now, before you start I want to check to see about my listener.
   OK, Lisa was a good listener.
   Randy was fairly good.
   Aaaaa, and this Randy was fairly good.
   Eric, you were not good, you got almost all your work filled in/you weren't listening.

Now boys and girls / listening is important / for one reason / you will need it later on.
If you get in the habit of listening / then / no matter what job you have to do / then we'll have, we'll have that to do it with. (p. 163)

3. Teacher talk, although designed to enhance understanding, is not always clear. In this example, the teacher's discourse is designed to link past classroom experiences with a current science project. The reader may judge if this third grade teacher has accomplished that objective:

   OK, everybody sit down now.
   What you're gonna be doing today / is / you're gonna grow your own crystals.
   If you remember last week / we grew some crystals back there but I kinda put it together didn't I?
   Well this week you're gonna grow you own.
   How many people in here / know what a tea bag is?
   Right, only these tea bags are a different kind of tea bag.
   These things / they look about the same on both ends but if you're really careful you can open the top part up. (p. 168)

4. In the following example, metalinguistic skills are being tapped. Using language to think about language requires a level of abstraction that may not be present in some children. This sixth grade teacher is providing instructions for a group reading task:

   OK / uh / now we're working with the/ base form and the / s/ form of verbs.
   The first part / you're supposed to / uh / complete the sentence with / uh / with what / either one, either the "s" form or the base form.
   Will you please read the sentence?
   No you're on the wrong sentence. (p. 171)

As one can see in the above examples, the language of instruction places great demands on listening comprehension and carries with it many errors in communication. False starts, repetitions, lack of clarity, and abstract language usage beyond the potential knowledge base of the listener will increase the comprehension difficulty for the student. For a student with language difficulties or language immaturity in contrast to age peers, the instructional setting may not facilitate the likelihood of effective communication. To be a successful learner in this setting, a youngster must have within his or her repertoire listening skills and speaking skills which might be different from listening and speaking skills that are effective or sufficient in other areas of his or her life.

Given concerns about the language demands of the school setting and the difficulty it may pose to students, two models follow that frame our understanding of potential interventions. While many communication models exist, these two provide appropriate levels of analysis and focus for our purpose. One model will focus on the youngster as speaker in a communication act, while the other will focus on the youngster as listener.

A Framework for Understanding Communication

To understand conversation and necessary conversational skills, a model proposed by Spekman and Roth (1982) is discussed. They organize pragmatic language skills into three primary components: communicative intentions, presupposition, and the social organization of discourse.

Communicative Intentions

The first component, communicative intention, involves the ability to convey the intended purpose of a message. These purposes might include greeting, requesting, informing, protesting, or directing. This is done in a variety of ways. Gesture might be used, paralinguistic skills (e.g., intonation, pitch, intensity, stress on particular sounds) might come into play, or linguistic skills (specific words or wording) might convey the intent of a message. Communicative intent could be conveyed through the use of a single communication mode, or any combination of those listed. For example, a youngster might communicate his desire for a newly baked cookie by coming close to the plate, saying "Mmmmm", while pretending to take a cookie. Or that same youngster might ask "Can I have a cookie?". If the youngster said "Smells good!", the intent of that message requires more effort on the part of the listener. The youngster may be asking for a cookie or just reporting on what he smells. The same message can convey a variety of intents. A more literal message requires less effort to understand. Another message might require a greater degree of inference on the part of the listener, thus demanding more skill in listening and comprehending. Knowledge about communicating intent will enable a youngster to speak more effectively.

Presupposition

Presupposition refers to the speaker's ability to develop a message that takes into account the listener's needs. Knowledge about the listener's probable prior knowledge about the topic, awareness of how the message relates to the social context, and knowledge about how much information is necessary, must all come into play in formulating a message that will communicate to the listener. This ability to understand or take the role of the listener is important for effective communication. For example, if two students were on a field trip to the zoo yesterday and one says to the other "That lion we saw yesterday was big!", understanding of the message can be expected because of shared prior knowledge of the event. On the other hand, if one of the youngsters did not go to the zoo, nor knew of the field trip, that message might require more clarification before it is understood. Altering the way a message is framed because of the age of a listener is another example of presupposition skills.

Social Organization of Discourse

This level of communication, social organization of discourse, refers to ones' ability to maintain a conversation over several conversational turns. This relates to a youngster's ability to alternate between the speaker and listener role, following the rules of effective communication as they relate to each role. For example, initiating a conversation and indicating when it is the other person's turn to respond, turning the conversation over to the listener within an appropriate time frame, listening and then responding appropriately, make up the social organization of discourse. Effective conversational partners will manage this flow back and forth, resulting in adequate comprehension.

Context

The final element of communication is knowledge about the context in which the message giving and message receiving is taking place, and how that variable will impact on communication success. For example, when talking with someone as a brass band is marching by, an effective communicator will alter the message accordingly.

Difficulties Youngsters Might Exhibit as the Speaker

While the language difficulties of individuals with mental disabilities will vary considerably, consideration of the types of difficulties youngsters with language problems have within the context of communicative competence will help direct teachers' selections of appropriate interventions. Research in this area is in the preliminary stages, however existing findings provide some insight into the potential problems youngsters might exhibit.

Johnson, Johnston, and Weinrich (1984), in a study of language-delayed school children, found frequently occurring problems in four broad areas. Children had difficulty with topicalization. This encompassed difficulty in establishing the topic and making appropriate comments, lack of topic change markers, and failure to maintain a topic for a sufficient length of time. Children also exhibited difficulty adhering to conversational rules. This included lack of sentence termination, missing discourse connectors, inability to respond when called upon, difficulty knowing when to take turns, inability to ask or answer questions, and inability to open and close conversations. The third broad area of difficulty, problems with register, included provision of insufficient information for a listener, and inability to adjust their register to the language of the speaker. The last problem area, difficulty with syntactic forms, included frequent use of redundant information, deletion of necessary information, failure to use references and referent error, failure to order old and new information into sentences, and difficulty using pronouns and articles to signal old and new information. Other researchers confirm similar difficulties in language disabled, learning disabled, and cognitively delayed youngsters (Bryan & Phlaum, 1978; Spekman, 1981; Bryan, Donahue, Pearl, & Sturm, 1981). The social impact of these communication deficits are profound. Youngsters exhibit difficulty maintaining peer relations as well as having difficulty interpreting correctly the language of school and learning.

A Framework for Understanding Listening Skills

This author and colleagues (Robinson & Smith, 1981) have proposed a model of listening which is useful in providing a broad framework to examine the different component skills of listening for the purpose of instruction. This model includes three major parts: the message, the cognitive processes involved in effective listening, and the listener's response. There exists a reciprocal interaction between the parts, and a careful analysis of the components in classroom settings is necessary before appropriate instruction can be designed. Each part will be discussed briefly and a graphic depiction of the model is represented in Figure 1.

Figure 1

A Model to Define Listening

INPUT (the message)

Clarity/Articulation
Vocabulary level
Complexity
Duration
Informative/Ambiguous
Nonverbal communication

LISTENING (the cognitive process)

Prerequisites
Attention
--Acoustic Competence
Language Competence
--Perception
--Syntactic
--Semantic
Listening
Memory
Comprehension
--Literal
--Critical
--Appreciative
Knowledge of the required task

The Message

Considerations of what one must account for in the development of an effective message were discussed at length in the previous section. However, the perspective of Robinson and Smith (1981) will be reviewed briefly. They, like Spekman and Roth (1982), noted that a message consists of words, sounds and nonverbal actions. Various characteristics will influence the ease with which the listener will comprehend the message.

The clarity of speech, in terms of articulation, dialect, starts and stops, or presence or absence of competing background noise, can effect listening success. The speaker's vocabulary level can influence listening success. If there is a mismatch between vocabulary used to convey the message and the listener's vocabulary level, then there is a greater likelihood that accurate comprehension will not occur. Beyond vocabulary, the complexity of the intended message will effect the listener's comprehension. Conceptually complex or abstract ideas may be hard to understand regardless of the vocabulary used to explain them. The length of a message, or the duration, can create listener fatigue or inattention, and the informative versus ambiguous quality of a message will facilitate or impede understanding. Finally, the presence of appropriate nonverbal information (gestures, facial expressions, etc.) will serve to help the listener understand the message better, while absent or conflicting nonverbal input may serve to cloud the meaning of a communication. The way the message is constructed will contribute greatly to how a listener comprehends.

Listening--The Cognitive Process

The components of effective listening can be conceptualized as three subparts which must interact in an integrated fashion. The first subpart is comprised of the prerequisite skills of attention, acoustic competence, and language competence. The second subpart includes the cognitive processes of memory and comprehension, and the last subpart is knowledge about response options. Each subpart will be discussed separately.

Prerequisite skills. There is a set of skills that must be present to some degree for effective listening to occur. Selective attention, or the ability to attend to relevant or central stimuli, is a necessary listener skill. Acoustic competence, or hearing acuity, must also be present to a sufficient degree. The level of language competence in specific skill areas (i.e., phonological skills, knowledge of syntactic rules and semantics) will either facilitate or interfere with comprehension of the message and appropriate participation in a communication act. Attempting to increase skills in these areas of oral language is not the focus of this chapter. Intervention at that level of language learning, while helpful and worthy of attention, does not assure a student will become more effective in communication or using language to learn. However, as a teacher, it is important to know at what level a youngster is functioning relative to those language skills to determine if the youngster has the prererquisite language knowledge for the messages he or she will receive in the existing school setting.

Listening

Effective listening in school is dependent on memory and comprehension. While they are not identical, they are inseparably linked. Listening comprehension activities in school might be characterized in three ways: those that place a high demand on intentional, strategic remembering; those that are primarily semantic in nature, thus allowing the youngster to increase comprehension by deliberately tying what they hear to what they already know; and those that require little intentional remembering because of high interest or salience. For example, those that place a high demand on intentional memory storage and retrieval strategies might include remembering directions on how to do a new task, or remembering the spelling of a word the teacher has just spelled orally. These kinds of listening comprehension tasks require verbatim recall, thus demand effective memory skills. Comprehension activities that are semantic in nature might include comprehending and remembering the gist of a lecture or a story read orally. Verbatim recall of the information is not necessary, and relating what one has heard to prior knowledge one already has about the topic facilitates both comprehension and retention. However, if there is little prior knowledge of the information to be remembered, or if it needs to be retrieved later (possibly for a test or an assignment) more deliberate, strategic memory activity is required. The third listening comprehension activity is purely semantic in nature, requiring no deliberate memory storage or retrieval techniques. When participating in a conversation about birthdays, favorites toys, or other topics of high interest or salience, youngsters might use involuntary recollection, vocabulary knowledge, and comprehension strategies to understand what is being said (for example, reflecting on prior knowledge or comprehension monitoring). They do not need to use deliberate memory strategies to assist in comprehension.

Memory is linked to the listening comprehension process. If a message is not encoded, stored, and available for retrevial, comprehension for the purpose of learning cannot occur. Therefore, the development of memory skills can assist disabled learners to be more effective listeners.

Knowledge About Response Options

As stated earlier, spoken language in the learning and social context is comprised of speaking and listening effectively. These two skill areas are intertwined and a youngster moves from the role of listener to that of speaker as part of the communicative process. Therefore, students must know how to act on what they have listened to; they may make a motoric or nonverbal response, a written response, or a verbal response. From an instructional perspective, an observable response is important if communication success is to be determined.

Difficulties Youngsters Might Exhibit in Listening Effectively

Little research exists that examines the listening skills of disabled children and youth in relation to the communicative act. However, an analysis of research addressing the component parts of listening suggests many youngsters with mental disabilities have difficulty listening effectively. Certainly, teacher reports confirm this supposition; many youngsters demonstrate difficulty following oral directions, attending to or comprehending class lectures or discussions, following a conversation, or retreiving orally received information at a later time.

There is substantial research delineating the attentional deficits of youngsters with mental disabilities (Hallahan & Kauffman, 1975). These children often have difficulty filtering out extraneous stimuli and attending selectively to a focal task. Semantic or syntactic deficits can also inhibit listening proficiency. Butler (1986) found in reviewing the research on language disabilities, that many disabled youngsters exhibit a range of language deficits regardless of the primary handicapping condition.

Memory deficits also impact on listening ability. Researchers (Flavell & Wellman, 1977) found youngsters with mental disabilities did not use memory strategies like rehearsal and clustering to assist themselves in remembering oral information. However, when taught memory strategies, youngsters improved their retrevial of listened-to information significantly.

Many disabled youngsters are deficient in the use of comprehension strategies. Brown (as cited in Kail, 1979) discussed prose recall in terms of constructive memory processes. "People use their knowledge to embellish, elaborate, and otherwise go beyond the information given as they represent information in memory (Kail, 1979, p. 84)." Comprehension monitoring is such a cognitive activity. Skilled listeners transform information in order to understand it. They use their stored knowledge to help generate hypotheses about the best possible interpretation of what they hear and evaluate how well their interpretation fits the material, thus retaining or revising their understanding as needed. Spekman (1981) found youngsters with disabilities had difficulty monitoring their comprehension in conversations with peers. They did not ask for clarification of ambiguous messages, and refused new information even when the message they heard was confusing. In another study, students with disabilities said they understood the rules of a game, before they had been told enough to make that possible (Kotsonis & Patterson, 1980). In light of these difficulties, it is no wonder many youngsters with disabilities do not listen effectively to facilitate their learning.

Summary of Intervention Frameworks

The two models of described facets of the communication process provide a framework to analyze student strengths and weaknesses as well as the general language demands of the setting. They also serve as a structure for organizing appropriate intervention strategies. Some students will need to work on their skills as the speaker, some as a listener, and some as managers or participants in communicative acts. The following section delineates a selection of intervention tactics that teachers of students with disabilities could use to assist youngsters in improving their spoken language skills.

Interventions

Given our understanding of the spoken language skills needed for learning in school and participating in social contexts, this section will address intervention from two perspectives. First, improving the language of school so that it better facilitates learning will be discussed. Many youngsters need to improve their spoken language skills and that process takes time. Thus, teachers may need to modify the messages and conversational context of the instructional setting to increase language comprehension in their students, as well as provide a better model of communicative competence. Second, intervention strategies designed to improve youngsters' skills as speakers, listeners, and conversational partners will be described.

Strategies to Improve the Language of School

The models discussed previously to describe listening and speaking will be used to frame intervention suggestions. For the teacher to effectively improve the messages or language of instruction, she or he must be aware of message components that, if well matched to the listener's language ability, can facilitate understanding. These include clarity of speech, vocabulary level, complexity of ideas presented, duration, informative quality, nonverbal and paralinguistic components, as well as general environmental or contextual factors affecting comprehension. Each will be discussed in relation to the listener.

Attention

The speaker can facilitate listener attention in a variety of ways. One powerful technique is the use of advanced organizers. An advanced organizer is a statement that lets the listener know what he is going to hear. This provides a structure for information that will follow and assists the listener in comprehending. Lenz (1982) found that well constructed advanced organizers increased handicapped youngsters' understanding of lecture material. They include ten steps in developing instructionally sound advanced organizers.

1. Inform students of the advanced organizer.

   "Now I am going to tell you what we will do today. Please pay careful attention."

2. Identify topics or activities that will transpire.

   "We will be discussing sources of energy. Specifically, we will discuss oil, gas, and the sun."

3. Provide an organizational framework either as an outline, list, or narrative of the lesson's content.

4. Clarify the teacher's and expected students' actions.

   "I will review the points made in your text book. I want you to follow along in your book."

5. Provide background information, relating the topic to previously discussed information or student experience.

   "Yesterday we talked about the world's growing energy needs. What are some of your family's energy needs? How has that changed over the last 20 years?"

6. State the concept(s) to be learned.

7. Clarify the concepts by providing examples and non-examples.

   "You will learn that energy needs can be met in a variety of ways and that conservation of resources applies to this discussion of energy. For example, when someone builds a house, they must make some decisions about how to heat their house. What might some of those considerations be?

8. Motivate students to learn by pointing out the relevance of the topic to them in a personalized and believable fashion.

9. Introduce new or difficult vocabulary.

10. State the general outcome desired.

    "At the end of today's lesson, I want you to be able to.......
    You will need to know this to complete the activity."

A well constructed advanced organizer focuses the listener on that to which they must attend. Others (Hallahan & Kauffman, 1975; Kazden, 1973) found teacher attention to be an efficient and effective strategy to increase attention. Proximity or eye contact assists the listener. Attention to environmental factors like extraneous noise or visual input, can also assist the listener. Finally, sensitivity to the approximate duration, or length of time the listener can be expected to attend should guide the speaker.

Language

The teacher must be aware of the youngsters' syntactic and semantic skills. Messages can be restated; vocabulary or syntactic structure can be simplified. Important or new vocabulary should be introduced and taught directly. It cannot be assumed that youngsters will automatically pick up the meaning from context.

Memory

Persons with effective comprehension skills use a variety of memory strategies to encode, store, and retrieve information. Enhancement of youngsters' memory can occur if the speaker (e.g., teacher) is knowledgeable about organizational strategies used in memorization. Wiig and Semel (1980) discussed various elements of discourse that a speaker can control. These include word frequency, logical relationships, linguistic structure, length of utterance, serial position of important information, and salience or immediate relevance.

Words used in everyday speech are considered high frequency words. They tend to be more easily recalled than low frequency words. Teachers should listen to the speech of their students in non-instructional situations (lunch, recess, etc.) to get a sense of the common vocabulary of their students. Word lists common to educators (e.g., the Dolch word list) also provide information about high frequency words common within the instructional setting.

Associative strength refers to the connection that can be made between important words in a message. Words with strong associations (dish, cup, bowl and knife, fork, spoon) are easier to recall when placed together in logical categories. While categorization is an effective mnemonic technique, few youngsters with language or memory difficulties use it without guidance.

Other variables that speakers can control to assist the listener in remembering information are length of utterances, linguistic structure, and consideration of the serial position of information. While seemingly self-evident, teachers sometimes do not monitor the length of their utterances. The length of a statement or the duration of a series of statements can facilitate understanding or confuse a listener depending on the speaker's ability to match language used to listener ability. However, not all long sentences are difficult to remember. Well constructed utterances consisting of related information can be easy to remember.

The position of words in a sentence or in an extended discourse can facilitate recall. Final words or ideas are easier to remember than initial words, and ideas or words in middle positions are most difficult to recall. These effects are called primacy (initial word) recall in contrast to recency (last word) recall. Many developmentally delayed youngsters remember the last words or ideas presented and forget those given first (Hallahan & Kneedler, 1979). Therefore, structuring discourse so that most important information is given last makes instructional sense.

Restatements of important information should be carefully monitored by the teacher. Research (Wiig & Semel, 1980) demonstrated that changes in restatements confuse when the delay between statements was longer than 45 seconds. Therefore, when the teacher is cognizant that she was unclear and needs to explain or try again, she should inform students that that is occurring; she is "clearing the slate" and going to restate the information.

Finally, information that is relevant to the listener is more easily remembered than information for which the listener has no prior knowledge. The concept of prior knowledge is extremely important to understanding comprehension and is discussed in some detail in the following section. Briefly, if youngsters are provided a salient referent, either from familiarity or interest, connecting what they already know to what one wants them to know, comprehension is more likely to occur. Providing relevant examples, non-examples, and analogies are important and powerful instructional techniques for teachers to develop.

Increasing Comprehension

Research has demonstrated that comprehension is dependent to a large degree on what one already knows about a topic under discussion. This is called prior knowledge. A speaker can facilitate comprehension by helping the listener recall any knowledge he or she has about the topic. Then, new information can be integrated with existing knowledge.

There are many procedures teachers can use to enhance prior knowledge. Holmes and Roser (1987) discussed assessing students' prior knowledge through free recall, word association activities, structured questions, and unstructured discussion. In using free recall, a teacher might say to her students "Try to think of everything you know about __. I will write it down on the board." This information becomes the basis for the following instructional discussion. Word association activities require the teacher to develop a list of important vocabulary which will be basic to the following discussion. Then, the teacher might say "Today, we are going to discuss __. I'm going to give you a word, and I want you to tell me everything you can think of about that word as it relates to ____." All ideas are then saved on posterboard or the chalk board. Structured question activities require the teacher to prepare a set of questions that will quickly probe the knowledge a student might have about a topic prior to beginning a discussion about it. Unstructured discussion can also be used to probe prior knowledge. Students can be encouraged to talk about a related events or experiences before instruction begins.

Semantic feature analysis and semantic mapping are two techniques that also can be used to enhance prior knowledge (Anders & Bos, 1986; Johnson & Pearson, 1984). Both techniques require the teacher to provide vocabulary or key concepts for the students. The youngsters then free associate on the information provided. The teacher and students create a map illustrating the relationships among the vocabulary and concepts provided and those the students generate.

Facilitating Communicative Competence

Spekman and Roth (1982) described methods teachers can use to increase the communicative competence of their students. Within the model they developed, teacher modification in communicating intent, presupposition, and directing the social organization of discourse is discussed. They noted that all intervention activities should take into consideration variations in the physical setting, variations in the partner with whom communication activities are occuring, and contexts which take into account the interests and motivational attributes of the youngster.

Communicating Intention

To clarify communicative intent, teachers can provide deliberate models of different types of requests. Teachers can model requests for information (What did you do after school last night?), requests for action (Give me your notebook.), responses to requests (I do not want to return that paper at this time.), statements (I went to the baseball game last night.), attention seeking comments (Look at this!), protesting (I don't like the way you acted toward him.), greetings (How are you doing today?), and other comments intending humor, sarcasm, warnings, exclamations, etc. (You are so silly!). This will provide a model for youngsters to follow. Furthermore, if teachers want to encourage their students in the use of this communication principle, it is important to respond to communicative intents students make in a meaningful way. When focusing on the development of communication skills, teachers must respond to communicative intents and quell the inclination to correct syntax or semantics. Rather than correcting a student's question, the teacher should first answer it, and then provide an alternative, correct model. For example, when people engage in conversation, they accept shortcuts in language. This is a form of discourse called ellipsis. If you asked a friend, "Do you want a ride to work?" and he responded "Yeah, eight is good," you would conclude that the conversation met its intended purpose. Yet teachers might step in and say to a student "Say 'Yes. Please pick me up at eight o'clock'." Teachers should focus on syntax only after responding to the comment or answering the question the student has posed. Then, the teacher is responding to communicative intent first and grammatical considerations second.

Presupposition

Presupposition addresses the communication principle of role-taking. Teachers can provide regular models of role-taking within the conversational context. For example, teachers can discuss others' point of view: "How do you think he feels?", "If I were him, I would think...." An appropriate model provides a starting point for direct instruction in this language skill. Prompts, reinforcement of successive approximations by a student would follow. Teachers can also assign a perspective to students prior to a discussion. A direction like "Listen to this information as though you are a parent." enhances the skill of reflecting on others' points of view.

Social Discourse

When a teacher wants to encourage social discourse, certain conversational "errors" should be tolerated without correction. When responding to a student's comment with "John, use a a complete sentence." a violation of conversational rules has occured. While understanding, the teacher did not confirm conversational intent, thus throwing the conversation off course. On the other hand, students can be taught through direct instruction procedures how to approach certain conversational situations appropriately. Teachers can generate a list of rules, or formulate a series of steps that are appropriate for particular situations. For example, the ASSET Program for Social Skill Training (Hazel, Schumaker, Sherman, & Sheldon-Wilgen, (1981), delineates a series of conversation rules for various social situations common in school. When accepting criticism students are taught to:

1. Face the person.
2. Maintain eye contact.
3. Use a normal voice tone.
4. Have a serious facial expression.
5. Posture should be straight.
6. Stay near the person talking.
7. Listen closely to what the person says.
8. Restate to check that you understand the criticism. If you don't understand, ask for more information.
9. If you agree, apologize and ask for suggestions. If you don't agree, say you understand and tell your side with the facts.
10. Say you will change, if necessary.

In this manner, appropriate conversational skills can be delineated, modeled, and practiced.

The teacher can modify the language of school in numerous ways to facilitate youngsters' comprehension of language. However, that is not always possible, and some youngsters need to develop better oral language skills. Therefore, we will turn our attention to intervention techniques designed to improve speaking and listening skills.

Strategies to Improve Oral Language

Framed by Spekman and Roth's (1982, 1984) model of communicative competence, intervention strategies will address improving communicative intentions, presupposition skills, and the appropriate management and participation in discourse.

Communicative Intentions

The instructional goal in the area of communicative intention is to increase the ways in which youngsters use language. Specifically, two objectives should be considered:

1. To increase the range of intentions for which language is used: (a) to request information; (b) to request action or direct others' behavior; (c) to respond to requests; (d) to state or comment; (e) to seek attention; (f) to greet; (g) to protest, reject, and deny; and (h) to accomplish other acts such as sarcasm, humor, and so forth.
2. To increase the variety of forms comprehended and used to express specific communicative intentions. Form can be viewed along three dimensions. One entails the utilization of gestural, paralinguistic, or

> verbal forms; the second involves syntactic form (e.g., declarative, interrogative, imperative forms); and the third involves such factors as the degree of explicitness and politeness (Spekman & Roth, 1984, p. 9)

Examples of how one might provide contexts where these objectives can be modeled and practiced follow.

Requests for Information

Activities can be developed which require the targeted youngster to ask for information. For example, have the youngster interview various people who will require different approaches (e.g., a younger child, a classmate, the janitor) about different topics (e.g., favorite activities, occupations, opinions). Or send the child to gather information. Role-playing activities can provide useful practice in communicating intent, as can games like twenty questions.

Requests for Action

Youngsters can be encouraged to direct others to do something. Games in which one child must direct the other would accomplish this goal, as would structuring the environment so that youngsters must ask to get access to materials, to leave the room, or get teacher attention.

Responses to Requests

Students can be encouraged to respond to requests in a variety of ways. For example in a role-playing situation, students could practice different ways to signal confusion. Quizzical facial expressions, "Huh?", and "I don't understand." are ways to convey the same thing. However, some responses are more appropriate than others in certain situations.

Statements or Comments

Show and tell, discussions of current events, and debates are examples of activities that encourage oral expression. Teachers must encourage talk that requires students to clearly explain what they think.

Attention Seeking

Again, role-playing is extremely effective in providing practice for youngsters in seeking attention appropriately and encourages them to experiment and expand their existing repetoire of skills. Situations like gaining the attention of a busy salesclerk, interrupting the conversation between two adults or two children are examples of role-play options.

Protesting, Rejecting or Denying

The teacher can stage events that elicit protestations. For example, the teacher can ask the students to do something they do not like, or to eat an undesirable food. She can remove desired materials or make blatantly untrue statements to elicit responses.

Greetings

Introducing a youngster to a variety of people will encourage them to practice greetings. Calling on the phone is another activity. Again, role-playing provides opportunities for students to practice these skills and see how other youngsters might address conversational needs.

Finally, teachers can provide opportunities to warn, tease, use humor and perform other communicative intents. In all cases, modeling, practice with feedback, and opportunities to generalize skills are appropriate instructional tactics.

Presupposition

To be an effective communication partner, youngsters must learn to take into account their listener's needs. Age, sex, social status, cognitive level, previous experience, and familiarity are all taken into account when formulating a message. Therefore, instructional goals in this area include:

1. To increase the informativeness of messages both in terms of clarity and content.

2. To increase the sensitivity of messages to particular audiences and communicative situations (Spekman & Roth, 1984, p.14)

Techniques to increase presupposition skills include referential communication tasks. These are activities that require a speaker to direct the listener in doing specific activities. For example, having a youngster guide another who is blindfolded through a task verbally, or having a youngster give oral directions on how to do a paper and pencil task without being able to see what those directed are doing until the task is completed. Variables that can be changed to increase or decrease the difficulty of such tasks include varying partners by age or familiarity, varying the amount of visual communication allowed, varying the amount and quality of feedback the listener can provide the speaker, or varying the difficulty of the task itself. Children directing others to find an object in the room is another example of a referential communication activity, and one can imagine how the rules of that game can be varied to make it easy or hard.

In addition, role-playing, or assigned perspective taking can provide opportunities for developing presupposition skills. Questioning students about the perspective of others helps create awareness. Creating plays or telling stories to varied audiences are other enjoyable activities that build communicative competence.

The Social Organization of Discourse

To increase a youngster's effectiveness as a conversational partner, Spekman and Roth (1984) recommended addressing the following objectives:

1. To increase the amount of speech which is socially directed to another person within social situations.

2. To develop appropriate turn-taking skills, including the use of topic-related utterances and the willingness to share the conversational floor.

3. To develop, increase, or improve the use of appropriate conversational initiation strategies.

4. To develop, increase, or improve the use of appropriate conversational maintenance strategies.
5. To develop, increase, or improve the use of appropriate conversational termination strategies (p. 15)

Conversation is more likely to occur when youngsters are involved in motivating situations or when individual interests are addressed. Any time youngsters are involved in communal activities (e.g., team learning situations, joint projects, cooperative assignment completion), opportunities for conversation increase. However, such activities must be structured so that each youngster has a role, and a contribution to provide. Otherwise a youngster with conversation deficits will have the option to not participate.

Structured conversational situations (the teacher calling on students, practicing Halloween trick-or-treat requests, telephone greetings) can provide the teacher opportunities for direct instruction in conversational rules. Conversation can be viewed as having three parts: initiation, one or more utterences which maintain the topic, and topic termination (Spekman & Roth, 1984). Students can be instructed in appropriate conversational options within these varied situations.

Finally, youngsters might need instruction and practice using "repair" strategies. Often communication breaks down, a message is not understood, the speaker or listener have difficulty maintaining their role, and someone must put the conversation back on track. Role-playing is effective in providing practice in requesting clarification, confirming understanding, asking for elaboration or repetition (Garvey, 1977). Viewing videotapes of various conversational exchanges can provide powerful models that teachers may use in various instructional capacities.

In conclusion, there are numerous tactics teachers might employ to increase the communicative competence of their students. It is important to realize that many youngsters may not develop these skills naturally, yet they are crucial to success in school and adult living. Thus, direct instruction in effective communication may be warranted.

Strategies to Improve Listening Skills

The model of listening delineated by Robinson and Smith (1981) is used to organize intervention suggestions. Thus, the development of improved attention, language, memory, and comprehension skills is discussed.

Attention

Modeling of self-instructional or self-management techniques is a powerful means of teaching youngsters to monitor and increase their attention. An example of a self-instructional sequence follows. The teacher might first provide a verbal model: "Okay, I'm getting ready to listen, I have to remember to listen for the important points..." After listening to the message, the teacher then models again: "Now, what was said?" (Restates or paraphrases the message.) "What are the important points? What am I supposed to do next?" After seeing the model, the youngster practices the self-instructional technique in practice and real situations. Feedback on use of the technique and reteaching if necessary completes the instructional sequence. Self-monitoring procedures have proven useful in improving student attention (Hallahan & Bryan, 1980). Students kept a tape recorder in their desk with a tape on which there were intermittantly spaced low tones. Each time the child heard a tone, he was to record on a sheet whether or not he was paying attention. Eventually, use of the tape was faded out. This technique has proved powerful in improving attentional skills by enhancing self-monitoring behavior.

Language Competence

Many students with mental disabilities may have difficulty with listening tasks because of delays or deficits in particular component parts of language learning. Thus, instruction in semantics and syntax might be necessary and appropriate. However, this author recommends that such instruction occur concurrent with instruction in communicative competence, thus enhancing such instruction's relevance to communication. Readers interested in specific language strategies should consult Wiig and Semel (1980), district-level speech and language therapists, or any of the excellent language development programs commonly in use.

Memory

As discussed earlier, much of the listening in which youngsters in school engage requires memorization. Students must encode and store information for future retrieval. Often retrieval activities make very specific demands on the listener. For example, to participate in ongoing discussions for a unit of study, youngsters are expected to remember what was discussed yesterday or last week; students must remember oral directions on how to do an assignment or, they must remember information shared in a class discussion or lecture because they will be tested over it. The language of school in contrast to that of the home or social environments, may demand more deliberate, intentional memorization behavior from youngsters. Thus, teaching youngsters how to apply memory strategies to listening tasks is recommended.

Memory Strategies

Robinson (1983) found two memory strategies, cummulative verbal rehearsal and self-questioning, effective in increasing listening comprehension of youngsters with severe learning disabilities. Examples follow. The rehearsal strategy was taught in conjunction with a following directions task. The teacher said:

> You can help yourself remember what you hear. One way to help yourself remember better is by softly repeating what you hear immediately after it is said. Repeating what you hear over and over is a way to keep the information in the front of your mind so you can remember it until you use it. If I were told some directions, I might rehearse by repeating the directions to myself, while using my finger to practice what I'm supposed to do on my worksheet.

Students' ability to follow grade appropriate directions improved dramatically when students used this technique.

Students were also taught to use a self-questioning strategy to check their comprehension of lecture or prose material. The teacher introduced the strategy in the following way:

> You can help yourself remember what you hear by asking yourself questions. For example, when you hear a story or some information, you can ask yourself some questions, or test yourself, before and after you listen. Asking yourself some general questions will help you get ready to listen carefully by reminding you of what information to listen for. Answering your questions, before answering the teacher's will help you remember the important information. A good set of questions might include:
>
> What is the (story, lecture) about?
> Who was in the (story, lecture)?
> Where did the events take place?
> When did they take place - in what order?
> Why is this information important or useful to me?

By enhancing the self-monitoring and self-instructional abilities of the youngster, listening comprehension showed significant improvement. Youngsters can also be taught to use the memory strategies of coding (or creating mnemonic devices), visualization, or clustering to aid in remembering information they hear.

Notetaking

Students can also be taught to develop memory aids to better remember listened to information. Notetaking is such an aid. A strategy developed at the University of Kansas Institute for Research in Learning Disabilities has proven effective in increasing youngsters' with disabilities notetaking skills (Denton & Schumaker, 1981). This strategy has three parts. First, students are taught to listen for verbal cues that signal important information will follow. Emphasis cues focus attention (You need to know..., Listen carefully to the next point..., Let me explain..., This is important...), organizational cues explain order, sequence or relationships (First..., second...; Next...; Today we will discuss...; To summarize...), and mannerism cues relate to specific speaker habits (spells out important words, repeats words for emphasis, uses a different voice tone). When they are proficient in identifying verbal cues, students are taught to identify important information, telegraph it (or shorten it so that it can be written easily), and stack it into outline form. A structured notetaking format is recommended. Students are taught to put main ideas or topics in a column on the left side of the page, and list details on the right. They are encouraged to space out the notes so that they are easier to read.

Instructional Methodology

In all the examples given, strategies were taught in a systematic way. First, students' existing habits were assessed, then the strategy was described and modeled by the teacher, students rehearsed the strategy steps until they could repeat them, then students practiced the strategy in controlled or easy materials with teacher feedback before using the strategy in grade or situation appropriate material.

Comprehension

Comprehension and memory strategies are interconnected. The content of the message provides a vehicle for practicing the previously mentioned strategies. Also, the comprehension techniques discussed in the section entitled "Strategies to Improve the Language of School" can be taught within a comprehension monitoring context. In other words, students can be taught to instruct themselves in checking their prior knowledge of a topic through recall, word association, and reflection. Students can also be taught to monitor communicative intention, considerations to be made in understanding the speaker (age, familiarity, etc.), their following of the rules of conversational listening (e.g., eye contact, proximity, facial expression), as well as nonverbal and paralinguistic components of the message.

Many students must be taught to be better listeners. They are deficient in these skills and do not seem to learn them automatically. Thus, direct instruction in effective listening skills is warranted.

SUMMARY

In summary, improving communicative competence is an appropriate instructional goal if we want students to use the language of school to learn. It is also evident that teachers must monitor the language of school (including curriculum materials, teacher talk, and social interactions) so that a) a language environment that better matches student ability can be provided, and b) teachers can better pinpoint student deficits in the area of communicative competence. Teaching youngsters with mental disabilities to be more effective participants in communicative acts will impact on their ability to profit from school, as well as improve their adaptive skills in relating to others in social, occupational and independent living situations.

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Chapter Fourteen

Physical Education

Luke E. Kelly

OVERVIEW

Before beginning a discussion on physical education for the mentally disabled an understanding of exactly what is meant by the term Physical Education and how this field differs from related fields such as physical therapy, occupational therapy, and recreational therapy is important. Physical education is defined in Public Law 94-142:

> (i) The term means the development of:
>
> (A) Physical and motor fitness
> (B) Fundamental motor skills and patterns; and
> (C) Skills in aquatics, dance, and individual and team sports (including individual and lifetime sports).
>
> (ii) The term includes special physical education, adapted physical education, movement education, and motor development. (Federal Register, August 23, 1977, p.42480)

The rights of special education students to receive appropriate physical education instruction was delineated in PL 94-142 in the definition of Special Education:

> . . .specially designed instruction, at no cost to parents or guardians, to meet the unique needs of a handicapped child, including classroom instruction, instruction in physical education , home instruction, and instruction in hospitals and institutions. (Federal Register, August 23, 1977, p. 42480)

The inclusion of physical education in the definition of special education distinguishes it as a direct service as opposed to a related service which was defined in PL 94-142 as:

> . . .transportation and such development, corrective, and other supportive services as are required to assist a handicapped child to benefit from special education, and includes speech pathology and audiology, psychological services, physical and occupational therapy, recreation . . . (Federal Register, August 23, 1977, p. 42479).

Related services, as indicated above, are designed to complement the direct services specified in the definition of special education and not as substitutes for these services. This, unfortunately, is a common misconception when distinguishing physical education from the related services of physical therapy, occupational therapy and recreation. In many cases, this problem is related to a lack of understanding as to the differences between these fields. For the purpose of clarification each of these fields will be briefly described.

Physical therapy is traditionally associated with using exercise, evaluating reflex activity, muscle tone and range of motion and developing functional mobility skills (learning to walk, use crutches, prostheses, braces, or a wheelchair) under the supervision of a physician.

271

Occupational therapy historically has focused on the development of independent living skills, fine motor control, and the creation of assistive devices (splints, modified spoons, etc.) needed to perform independent living skills.

Recreation is usually simply defined as voluntary use of one's leisure time. Therapeutic recreation is a specialized field within recreation designed to assist individuals to learn how to recreate. Therapeutic recreators provide services in leisure assessment, leisure education, leisure counseling, the transition from school or institutional programs to community recreation programs, and the provision of recreation programs. Therapeutic programs can involve a wide variety of activities such as sports, arts and crafts, dance, music, and drama.

Although there is some overlap between each of these fields, they each have a unique focus and subsequently are designed to make a unique contribution to the motor development of individuals with mental disabilities. The question, therefore, should not be which ONE of these services should be provided but instead what combination of these services are needed to help students reach their maximum physical and motor potential. Since physical education is the primary service, it is probably most appropriate for the adapted physical educator to provide the leadership in this area and involve the appropriate related services as needed depending on the individual needs of each student.

PHYSICAL AND MOTOR DEVELOPMENT

Historically, research has shown that individuals with mental disabilities are motorically delayed, possess low levels of physical fitness, have a greater tendency for obesity and are prone to more health problems. Further these deficits tend to increase with age and with the severity of the mental disability (Dobbins & Rarick, 1977; Francis & Rarick, 1959; Howe, 1959; Kelly, Rimmer, & Ness, 1986; Londeree & Johnson, 1974; Rarick, Widdop, & Broadhead, 1970). Research has also shown that these deficits can be remediated to a marked degree given the provision of appropriately designed and implemented instruction in physical education (Adams, 1971; Brown, 1968; Chasey & Wyrick, 1971; Corder, 1966; Solomon & Pangle, 1967). The remainder of this chapter focuses on the promising practices that have been identified in the literature as effective strategies for developing physical and motor skills in individuals with mental disabilities. These practices will be presented using the Achievement Based Curriculum (ABC) model (Wessel & Kelly, 1986) as an organizational structure. The ABC model (see Figure 1) implies that quality instruction be objective, systematic and constantly improving.

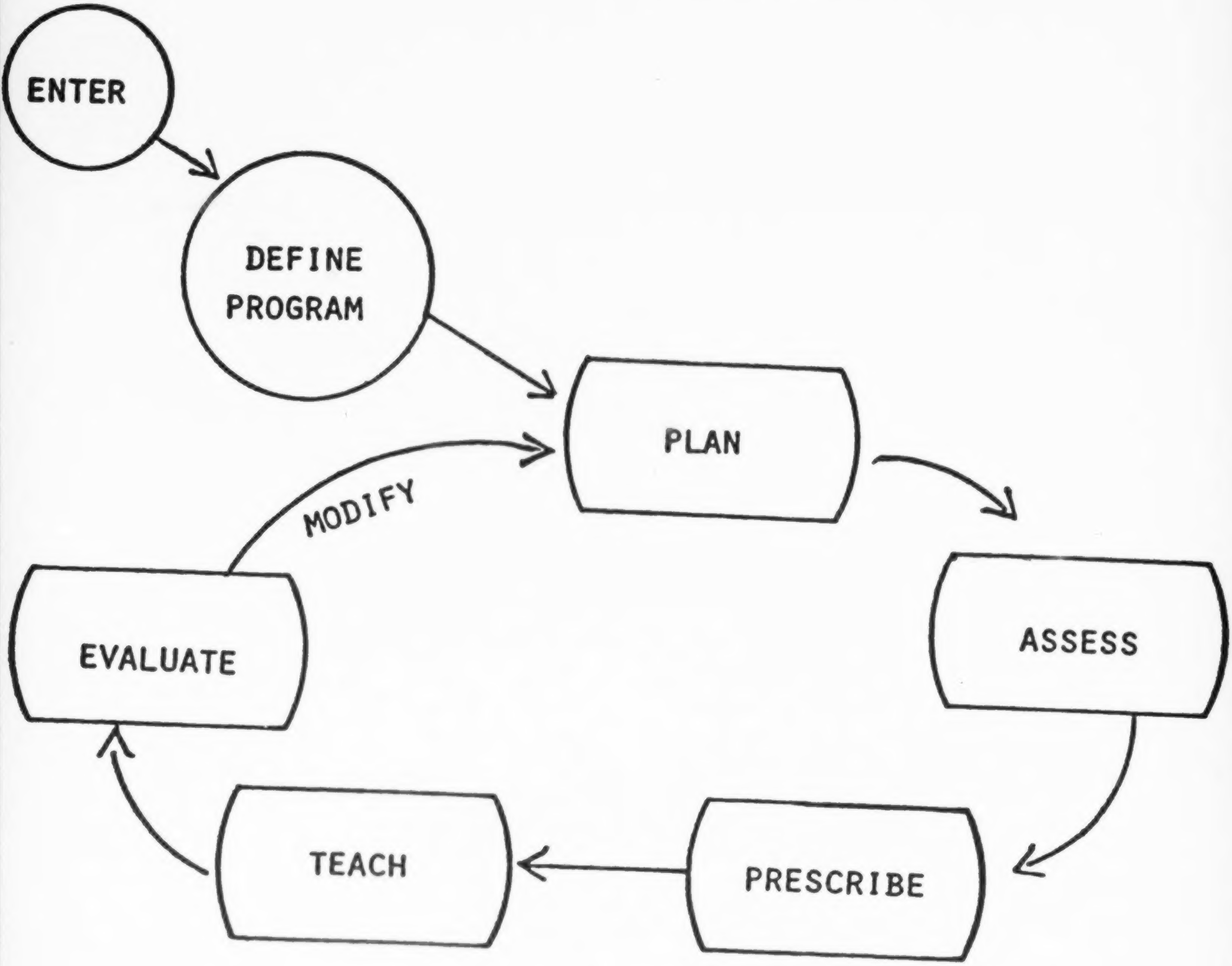
PLANNING

The first step to providing appropriate and quality physical education to individuals with mental disabilities in the ABC model is the establishment of a written program plan. A program plan defines what students will be able to do at the end of the program (program goals) and how these goals will be achieved via a sequence of instructional objectives. The scope of a program plan can range from an individual student's IEP to a K-12 curriculum. The program plan provides the basis for making instructional decisions, carrying out student and making program evaluation and subsequent modifications to the program plan.

The program planning process is essentially composed of four procedures: establishing program goals, determining goal emphasis, selecting and ranking objectives by goal, and sequencing the selected objectives across grades according to the goal emphasis and the ranking of the objectives. As a general rule, the goals of physical education are the same for all students. Common physical education goals are:

Figure 1

Achievement Based Curriculum
Implementation Model


ENTER
DEFINE PROGRAM
PLAN
ASSESS
PRESCRIBE
TEACH
EVALUATE
MODIFY

1. Develop and maintain functional levels of physical fitness.
2. Develop competency in body management including body control and body awareness
3. Develop mature locomotor patterns (i.e., run, hop, skip)
4. Develop mature object control skills (i.e., throw, catch, kick)

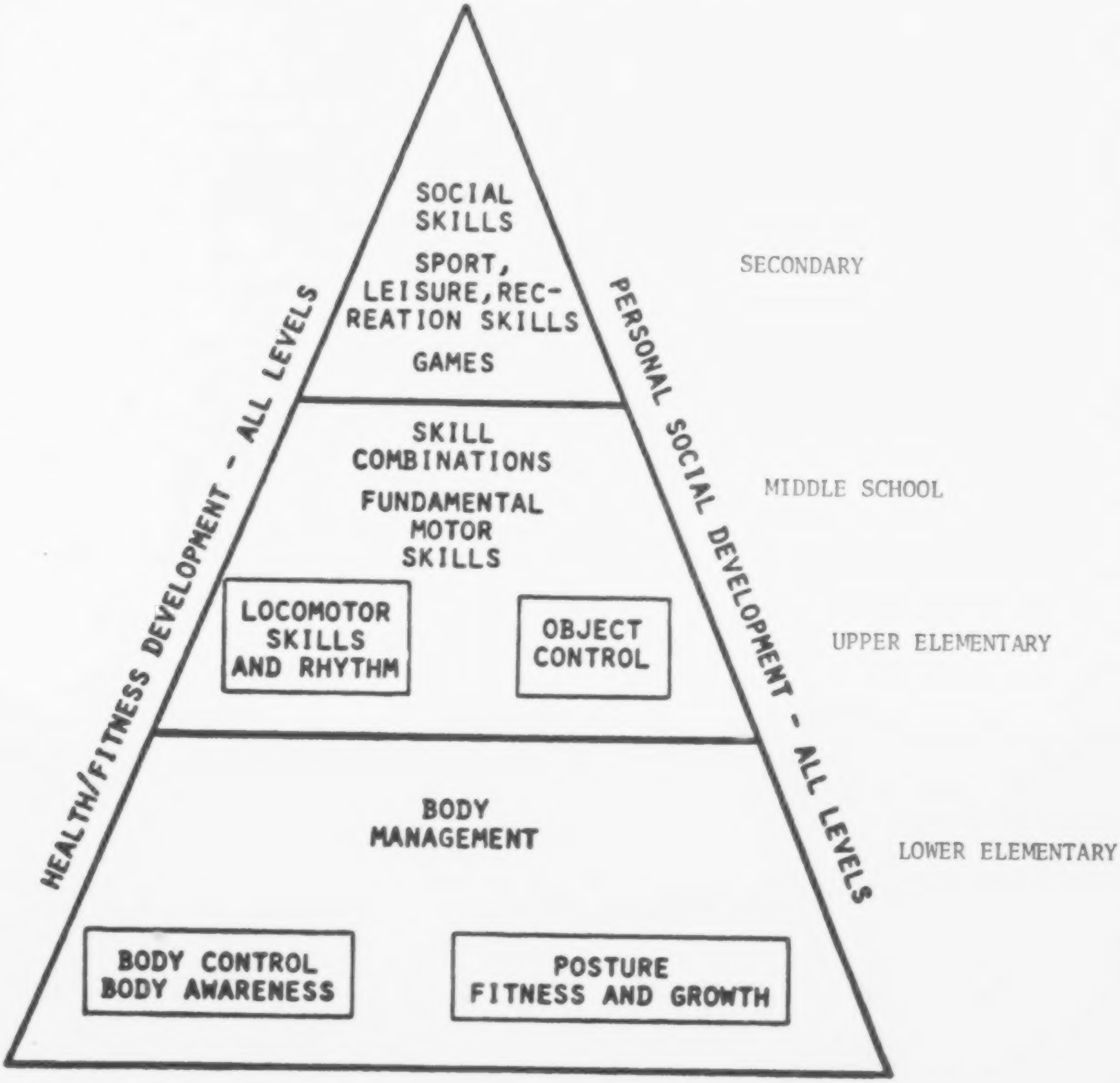
Figure 2 illustrates the scope and sequence of goals commonly addressed in a K-12 physical education curriculum. The pyramid structure implies the hierarchical nature of the goals. That is, for individuals to master the lifetime sport skill of tennis they must have previously acquired the prerequisite body management and fundamental motor skills. This implies that the emphasis placed on the various program goals will be different both within and across the program levels. The body management goal will most likely be a major focus of the lower elementary program and receive very little emphasis at the secondary level. Lifetime sports skills, on the other hand, will receive little or no emphasis during the lower elementary grades and will be the major focus of the secondary program.

The culmination of the ABC program planning process is the creation of an objective by grade by goal chart or a program plan that indicates what objectives will be addressed for each goal and when each objective will be taught and achieved in the program. Figure 3 illustrates a regular education K-5 elementary physical education program plan. This plan can be used as a starting point for making placement and instructional decisions for all students in the school.

The generic goals shown in Figure 2 are generally the same for all students, disabled and non-disabled alike. For example, it is desirable for all students to be physically fit, to develop body management skills and to have functional leisure skills. What does differ, however, is the degree to which these goals can be achieved. Assuming physical education instructional time is held constant for all students (i.e., 5 times a week for 30 minutes each day), non-disabled students may be taught to develop and maintain their cardiovascular endurance via a number of sport skills such as running, swimming, biking, skiing, rollerskating, rowing, or aerobic dance. More students with severe disabilities, on the other hand, may only be able to learn one functional skill (e.g., swimming) to develop and maintain their cardiovascular system in the same amount of time. This is an extremely important point for teachers providing physical education instruction to students with mental disabilities to understand. Programs must be designed so that all students achieve the program goals. This means in most schools, where the instructional time in physical education is predetermined, critical decisions must be made early for those students who acquire skills at a slower rate. What is being suggested here is to approach programming for the mentally disabled in a top down rather than a bottom up approach. The regular physical education curriculum is typically designed around a bottom up philosophy of providing the students with as wide a base as possible in the areas of body management and fundamental motor skills so that they have the skills to pursue a wide variety of lifetime sport skills in high school and in later life. Given the time required for the individuals with mental disabilities to learn motor skills and the fixed amount of instructional time available in physical education, programming for these individuals must employ a top down approach. Based on students' entry levels and learning rates, decisions have to be made regarding what functional lifetime sports skills would be most appropriate for these individuals and then appropriate programs designed to provide the essential body management and fundamental motor skills needed to learn these skills in the time available.

Figure 2

Basic Skill Objectives Consistent With Program Goals Needed by All Students


SOCIAL SKILLS
SPORT, LEISURE, RECREATION SKILLS
GAMES
SKILL COMBINATIONS
FUNDAMENTAL MOTOR SKILLS
LOCOMOTOR SKILLS AND RHYTHM
OBJECT CONTROL
BODY MANAGEMENT
BODY CONTROL BODY AWARENESS
POSTURE FITNESS AND GROWTH
HEALTH/FITNESS DEVELOPMENT - ALL LEVELS
PERSONAL SOCIAL DEVELOPMENT - ALL LEVELS
SECONDARY
MIDDLE SCHOOL
UPPER ELEMENTARY
LOWER ELEMENTARY

BEST COPY AVAILABLE

Figure 3

Sample Program Plan

K-5 PROGRAM PLAN

Goal Area			K	1	2	3	4	5	Curriculum Page #
Locomotor Patterns	1.1	Run	XX						16
	1.2	Gallop	XX						19
	1.3	Horizontal Jump			XX				58
	1.4	Vertical Jump			XX				61
	1.5	Hop (right-left)		XX					37
	1.6	Slide		XX					40
	1.7	Skip				XX			87
	1.8	Leap					XX		107
Object Control	2.1	Underhand Roll	XX						22
	2.2	Bounce/Dribble			XX				64
	2.3	Underhand Throw		XX					43
	2.4	Overhand Throw					XX		110
	2.5	Kick				XX			85
	2.6	Punt						XX	133
	2.7	Two-Hand Side Arm Strike (Baseball)				XX			88
	2.8	Catch/Fielding						XX	138
	2.9	Underhand Strike (Volleyball Serve)					XX		113
	2.10	Chest Pass (Basketball)			XX				67
	2.11	Bounce Pass (Basketball)				XX			91
Physical Fitness	3.1	Knowledge						XX	139
	3.2	Training Concepts						XX	144
	3.3	Terminology					XX		116
	3.4	Leg Strength			XX				70
	3.5	Flexibility			XX				73
	3.6	Abdominal Strength				XX			94
	3.7	Endurance					XX		120
	3.8	Arm & Shoulder Strength						XX	149
	3.9	Agility					XX		123
	3.10	Speed						XX	153
Social	4.1	Self-Discipline (Control)		XX					46
	4.2	Cooperation		XX					48
	4.3	Good Sportsmanship				XX			97
	4.4	Handling Winning & Losing			XX				76
	4.5	Respect Equipment & Property	XX						25
Body Management	5.1	Non-Locomotor	XX						27
	5.2	Body Awareness	XX						30
	5.3	Spatial Awareness	XX						32
	5.4	Use of Space			XX				51
	5.5	Quality of Movement			XX				79
	5.6	Relationship of Body to Other Objects				XX			100
	5.7	Basic Dance Patterns					XX		126
	5.8	Forward Roll						XX	156
	5.9	Rope Jumping				XX			103
Game & Sport Skills	6.1	Follow Directions	XX						34
	6.2	Knowledge of Safety & Rules		XX					54
	6.3	Member of Team					XX		129
	6.4	Participates in Games and Sports						XX	159

XX indicates when the objective is to be mastered. This does not mean that the objective is only worked on during this year. Many objectives will be worked on during all the years preceding, mastery and even after mastery has been achieved for retention.

Using a bottom up approach of programming for the mentally disabled in physical education generally results in only minimally achieving a few of the program goals and usually does not provide the students with any functional lifetime sport skills. For example, let's examine the case of a hypothetical child who is moderately mentally disabled, and starting school at age five. Current research indicates that this student is likely to be 2-4 years behind in his motor skills and will require approximately twice as much instructional time (learns at half the normal rate) as a non-disabled child. Following the bottom up curriculum and assuming that the child's motivation could be maintained, this student will probably only have achieved the objectives targeted for the fourth or fifth grade in the regular physical education curriculum by the end of 12 years of instruction. Leaving him with no functional physical or motor skills that he can use in his abundant leisure time after school.

What does all this mean in terms of the mentally disabled? First, the regular physical education program plan provides a starting point for decision making. For the mildly mentally disabled, most will be able to follow the regular physical education program plan with only minor modifications. Current research indicates that the mildly mentally disabled are more like the non-disabled in terms of their physical and motor skills then they are like the other categories (moderate and severe) of mental disability. When modifications are required for this group they should be made within the goal areas by stressing the achievement of the most essential objectives within each area. The alternative is exposure to a wide range of objectives, none of which are achieved. These individuals may also require supplementary adapted physical education to keep them on skill level with the other students in a mainstreamed physical education class.

ASSESSMENT

The key to making appropriate decisions in physical education for students with mental disabilities is assessment. Teachers can be called upon to make three types of decisions related to physical education and students with mental disabilities: eligibility, placement, and instructional decisions.

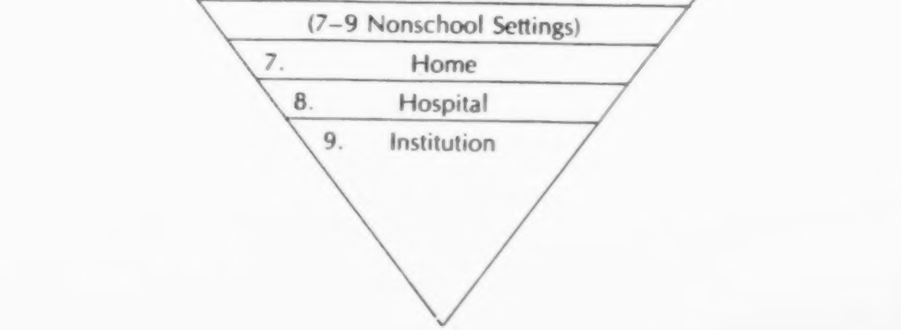
Both norm-referenced and criterion-referenced tests can provide valuable information needed to make accurate decisions. The key is knowing which type of test to use. As a general rule, norm-referenced tests are most commonly used for eligibility decisions and criterion-reference tests are most appropriate for placement and instructional decisions. This is not to imply that criterion-reference tests can never be used to make eligibility decisions or that norm-reference tests on occasion would not be appropriate for making a placement or instructional decision.

Eligibility decisions are related to determining whether a student's physical and motor deficits are severe enough to qualify for special education services. This form of evaluation usually involves the use of norm-referenced assessment instruments (e.g., Bruininks-Oseretsky Test of Motor Proficiency) which are administered by an adapted physical educator as a member of an evaluation team assigned to evaluate a student's physical, social, and learning skills.

The second type of decisions, which most commonly will be made by an adapted physical educator, are placement decisions. Placement decisions involve determining what is the most appropriate and least restrictive instructional setting in which to address a given student's physical and motor needs. The key words here are appropriate and least restrictive. Appropriate means determining that a student's specific physical and motor skills can be adequately addressed in a given physical education environment. Least restrictive means that the students should be, to the maximum extent possible in terms of appropriateness, educated with non-handicapped students. Least restrictive implies that there be a continuum of placements available in physical education. Figure 4 illustrates a continuum of physical education placements commonly available in most public schools. Placement decisions are typically made by evaluating a student's present level of performance on the objectives targeted for instruction in the regular curriculum, using criterion-referenced tests, and then comparing the performance levels obtained with those of the students in the regular setting. If the student's performance levels on the program objectives are within reasonable proximity of the students in the regular physical education program, then placement options 1-3 (see Figure 4) may be considered. If the discrepancy between the student's performance and the students in the regular program is too great, then options 4-6 should be considered. It should be noted that the decision making process presented above was discussed in terms of only one dimension, student physical and motor performance. It should be understood that a number of other variables must also be evaluated when making a placement decision such as class size, the range of abilities already in the class, the competencies of the target teacher, and the student's social, behavioral and learning characteristics.

Figure 4

Continuum of Physical Education Placement


1. Regular classes full-time without special services
2. Regular classes with consultant or itinerant teacher
3. Regular classes with part-time in resource room
4. Special class with part-time in regular classes
5. Special class full-time in neighborhood school
6. Special school as close to child's home as possible
(7–9 Nonschool Settings)
7. Home
8. Hospital
9. Institution

The most common type of assessment decision made by teachers providing physical education services to students with mental disabilities are instructional decisions. Instructional decisions involve determining what to teach a student on an objective targeted for instruction. Instructional decision making employs the use of qualitative assessment instruments which are used constantly before, during and after instruction. Prior to beginning instruction on a given objective, such as catching, the teacher must first assess each student in the class to determine what he or she can and can not do in terms of the qualitative components of this skill:

1. Correct preparatory position - eyes focused on the ball, knees slightly flexed, hands in front of the body, elbows flexed and near the sides of the body.

2. Arm extension - the arms extend in the direction of the ball in preparation for ball contact.

3. Contact - the ball is caught with the hands only; fingers spread and slightly flexed with palms facing.

4. Follow through - the elbows bend as arms absorb the force of the ball.

This information is then used to plan instruction: select games, activities, and drills as well as group students to optimize learning of the target skill. During instruction, the qualitative components are continuously used by the teacher to evaluate each student's performance and to provide explicit feedback. Following instruction, the students' qualitative performances are used to plan the next lesson.

One of the advantages of qualitative assessment items is that they can be easily created or modified (divided into smaller learning steps) by the process of task analysis. A large number of physical education objectives have already been task analyzed for use with special populations. So as not to waste valuable instructional time reinventing the wheel, teachers should review existing qualitative test items before creating their own. In many cases, an appropriate task analysis can be found or created by simply modifying an already existing item. Four sources of qualitative assessment items are briefly described below.

Project I CAN

Project I CAN (Wessel, 1976; 1979; 1980) is probably the largest and most comprehensive physical education curriculum available for the mentally disabled. I CAN was originally developed to address the need for an objective and systematic physical education curriculum for the moderately mentally retarded. The I CAN materials are built upon the ABC model and are composed of 175 objectives which include 14 instructional units distributed across three instructional levels: preprimary, primary, and secondary. Each performance objective in the materials is accompanied by: a criterion-referenced assessment item, an assessing activity, instructional activities for each component of the objective, games to complement the instructional activities, as well as record keeping and progress report forms. Since its creation, I CAN has been extensively field tested with children with mild, moderate and severe mental disabilities and has been reviewed and approved by the National Diffusion Network as a Model physical education curriculum. As an approved program, state and federal funding is available to schools who are interested in receiving training and adopting this program. A separate manual (Wessel, 1981) has also been designed to assist teachers working with the severely handicapped using the I CAN materials.

Michigan Essential Performance Objectives

The State of Michigan essential performance objectives for physical education (Michigan State Board, 1980) were in part, derived from I CAN and are used by the state to evaluate student competencies in physical education at the 4th, 7th, and 10th grades for both non-handicapped and special education students. Essential physical education performance and cognitive objectives are identified for three grade groupings: grades 1-3, 41 performance objectives and 7 cognitive objectives; grades 4-6, 37 performance objectives and 15 cognitive objectives; and grades 7-9, 9 performance objectives and 22 cognitive objectives. Additional assessment training and instructional materials are also available to support these essential objectives (Michigan State Board, 1981; 1983; 1984).

Data Based Gymnasium

Data Based Gymnasium (Dunn, 1980) was created at Oregon State University and was designed to provide a physical education curriculum for the severely handicapped. This project was based on Frederick's (1979) work, *A Data Based Classroom for the Moderately and Severely Handicapped*. This program takes a behavioral approach to instruction and focuses on skill development in four areas: Movement Concepts, Fundamental Motor Skills, Physical Fitness, and lifetime Sport Skills. This program has been extensively field tested and has been approved by the National Diffusion Network as a Model program.

Project Transition

Project Transition (Jansma, Ersing, & McCubbin, 1986) was developed at Ohio State University and was designed to focus on physical fitness and hygiene training for the severely and profoundly mentally retarded. The five physical fitness items addressed in this project are 300 yard run/walk (cardiorespiratory endurance), grip strength, modified situps (abdominal endurance), modified bench press (upper body strength and endurance), and a modified sit and reach (lower back and hamstring flexibility). The unique feature of these physical fitness test items are that they were designed to measure both qualitative and quantitative behaviors and that the qualitative measures include indices of how the skill was performed and level of independence as well as. This additional level of qualitative assessment is extremely important when working with the more severely and profoundly mentally disabled in order to record actual changes in behavior.

PRESCRIPTION

Prescription is the process of planning instruction at the lesson level. To prescribe instruction or plan a lesson, teachers must first know what objectives they specifically want to address in the lesson (from the program plan) and where the students are on these objectives (preassessment data). With this information in hand. teachers can then plan instruction. While an extensive discussion of instructional and managerial strategies is beyond the scope of this chapter, the following three principles deserve specific attention when planning instruction for students with mental disabilities:

1. Clarity and consistency of instruction - make sure the students understand exactly what skill or skills they are working on, why they are working on those skills, and what specific component of each skill they should be focusing on during instruction and practice.
2. Plan for Success.
3. Maximize on task time - effective use of space, equipment, staff, and organizational strategies.

Clarity and Consistency of Instruction

A direct, straight-forward method of instruction is recommended when teaching physical and motor skills to the mentally disabled. This instruction should focus on setting clear expectations for the students regarding what content they are learning, why it is important for them to learn this content, and what specifically they need to work on to master the content. This implies that the teacher must teach each objective prior to expecting students to apply these skills in game situations. This differs from selecting a game or activity and assuming that just because the students are given an opportunity to participate they will somehow magically acquire the skills that are involved. If and when games are used, students should know what specifically they are working on while they play the game. A recommended procedure is to first teach the students the qualitative components of the objectives they are working on. This is time well spent because it provides a basis for attending to instruction and for self-evaluation. All too often, teachers somehow expect students to deduce these components from their demonstrations and random instructional cues (step with the other foot, point your fingers). For lower functioning students, simple labels for the performance components can be employed such as the start position, action, and stop position.

A second recommendation is to use a standardized lesson format that is followed each class: introduction/warmup (6-8 minutes), instruction/practice (14-18 minutes), summary/warm down (6-8 minutes). Most individuals with mental disabilities respond positively to highly structured and consistent environments. Given this knowledge, teachers should attempt to provide a structured environment, particularly during early learning, to facilitate skill acquisition. Standardized procedures such as formations and rules are also recommended. Demonstrations, for example, may always be given with the students arranged in an established formation (semi-circle, on prearranged spots or carpet squares, etc.) which the students know to get in whenever they are told "class demonstration". For practice periods, the gym or classroom may be divided into established stations that focus on the specific components of each skill being addressed. The point is to minimize any confusion or uncertainty that may interfere with instruction and subsequent student learning. A minimum number of simple rules and signals should also be established and consistently enforced to maintain class management.

Planning for Success

Planning for Success is the key to the prescription process. Many students with mental disabilities have had long histories of failure in physical education and with motor skills in general. Therefore, they are not highly motivated to attend to or work on skills in this area. It is essential that students both achieve and perceive that they are being successful during each class, especially during the early phases of instruction. Planning for success is dependent on accurate assessment data, selection of appropriate instructional activities, and the use of systematic and explicit feedback. Since someone must always lose (fail) in competitive games, these should generally be avoided during skill instruction. Whether students are successful is relative to the standards to which they are compared. As a general rule, if an appropriate standard is not specified by the teacher (i.e., "can you bounce the ball using only your finger tips two times") students will tend to imply their own standard (i.e., being able to continuously bounce a ball while moving), which commonly is based on the ideal or mature performance of the skill. For many students with mental disabilities, the ideal performance will be a long term goal and is not an appropriate standard for comparison. Teachers must therefore carefully plan instruction so that students are given realistic expectations and feedback in regard to their performance related to these expectations.

Maximize on Task Time

On task time refers to the amount of instructional time that students actually spend working on the objectives targeted for instruction. While on task time is important in all learning environments, it is particularly important to monitor in physical education due to the nature of the instructional environment and the limited amount of time available. In many physical education programs, on task time can be as low as 5 -10% when the focus is on playing games (playing kickball to learn how to run, throw, kick and catch) rather than teaching specific objectives. Given that an average student only receives 90 hours (36 weeks X 5 days per week X 30 minutes per day) of physical education instruction in a year, 10% on task time would mean that they were only working on instructional objectives in physical education for approximately 9 hours for the entire year. This obviously is not enough time to develop the muscular strength and coordination needed to learn motor skills or develop physical fitness. Teachers must, therefore, plan to optimize on task time in physical education if they truly want to develop motor skills. Some example techniques for maximizing on task time are:

1. Plan instruction around the objectives to be taught and select drills and activities that involve high participation of all students.

2. Minimize the student:equipment ratio so that students do not spend time waiting in line to use equipment.

3. Have equipment set up prior to class and establish procedures for quickly assigning and retrieving equipment from students.

4. Utilize established signals and formations for instruction, thereby reducing the amount of instructional time spent on managerial tasks.

5. Avoid elimination activities where students are "put out" and must wait until the game is finished before they can participate again.

6. Plan for time efficient transitions between activities. Students could practice select locomotor skills while moving between instructional stations.

7. Modify equipment and set up instructional stations to maximize practice and reduce time off task. Throwing, for example, can be practiced with paper balls which can be made in great numbers, do not travel far and will not roll when they land on the floor. Using paper balls allows this activity to be practiced safely in a small area and enhances repetitive practice by reducing the amount of time required to chase down and collect the balls.

8. If aides are available, use them efficiently. Aides must know the objectives (qualitative components) being taught as well as the specific components targeted for instruction for each student they are working with in order to facilitate learning.

Additional ideas for increasing on task time, planning for success and improving the clarity and consistency of instruction can be found by reviewing the curriculum materials described at the end of the Assessment section of this chapter.

TEACHING

Teaching can be defined as the management of the instructional environment so that the desired learning outcomes are achieved. Inherent in this definition of teaching is that the teacher must first have the students under instructional control and second must have an instructional plan to achieve some desired changes in behavior. The focus on teaching in this section will be limited to highlighting a few exemplary teaching practices which have been found to be most effective when teaching motor skills to students with mental disabilities:

1. Demonstrate and model the desired behaviors frequently.

2. Use physical manipulation so that the students feel (kinesthetically) what the correct movement should feel like in contrast to their current movements.

3. Give explicit, immediate, personal and timely feedback.

Research has shown that modeling is one of the most effective methods for teaching individuals with mental disabilities motor skills. Modeling is sometimes narrowly defined as giving correct demonstrations of desired behaviors during instruction. In physical education, modeling includes continuous modeling of desired fitness and motor skill behaviors and attitudes as well. For example, demonstrating how to correctly perform a bent knee situp is important during instruction on this skill but it is equally important to model on a regular basis that this skill must be performed by everyone (including the teacher) to maintain one's abdominal strength and endurance. This does not imply that every teacher must be an expert in all the motor skills being taught. In fact, in many cases teachers can use a deficit in their performance as a model. Teachers can point out the weaknesses in their own performance and ask the class to help them improve during the unit. Done properly this can be extremely powerful motivator for students with mental disabilities.

Modeling is dependent upon the learners being able to compare their performance with a visual image of the desired pattern. For many individuals with mental disabilities it is hard for them to accurately evaluate their own performance. When shown demonstrations of correct and incorrect patterns of a skill, it is not uncommon for students with mental disabiities to insist that their pattern looks like the correct pattern when, in fact, it does not. What is lacking in these cases is a kinesthetic awareness of what their body parts are actually doing. While the desired movements could be verbally described, the most efficient way to communicate the desired movements in a pattern is to physically manipulate the student's body through the pattern. The combination of physical manipulation with a few carefully selected key words (reach, step, throw, follow-through) is the ideal way to teach motor skills to the mentally disabled.

Positive and immediate feedback is an inherent part of all good teaching. A good procedure for providing effective feedback in physical education is to employ the following rule. All instructional statements should have four parts: a positive word, the student's name, a statement of something that was done correctly, and a suggestion of something that can be improved (e.g., "Good Mary, that was nice arm extension, now let's concentrate on that big step on the next throw"). In addition to being able to provide positive feedback, teachers must make sure that they distribute it equally. Analyses of teachers' feedback behaviors indicate that they do not equally distribute their positive reinforcements. As a general rule, the better performing students tend to demand and receive more positive reinforcement from the teacher and poorer performing students tend to avoid being observed by the teacher and subsequently receive less positive reinforcement. Teachers must therefore devise a systematic procedure to ensure that all students are observed regularly and receive appropriate amounts of positive reinforcement.

Self-paced and self-reinforcing activities are recommended to keep student motivation high and to allow the teacher to move freely between stations. Suspending a tambourine against a wall as a target and marking lines on the floor every two feet from the target is an example of a self-rewarding and self-paced activity for throwing. Students can be instructed to start at the first line (2 feet from the target) and to throw balls until they hit the target three times in a row. Then they should move back to the next line (4 feet) and throw from that distance until they hit the target three times. This procedure is repeated until they reach the distance at which they need to practice (where they can not hit the target consistently three times in a row). As a general rule, targets that make lots of noise are very effective for students with mental disabilities, as long as the teacher can tolerate the noise in the environment.

For higher level students with mental disabilities, individual progress charts and wall progress charts can also be very reinforcing. Qualitative assessment charts (preferably using pictures to illustrate the various components of the skill) can be posted on the walls of the classroom or the gym. Each time students achieve a component or a step in the task analysis, they can be given a sticker to put on their chart. This form of progress chart focuses the students' attention on the qualitative components of the skill and also provides the teacher with a continuous evaluation record of how the students are progressing.

Non-explicit general feedback (e.g., "Good work class"), on the other hand, should generally be avoided. This form of feedback does not indicate what specifically was done correctly. Odds are that several students in the class just finished doing something markedly wrong with the pattern being practiced and when non-explicit positive feedback is given, these students are reinforced for doing this incorrect behavior.

In physical education, teachers must also be very aware of what they communicate to students via their non-verbal behavior. For most students with mental disabilities, teachers' behaviors are very powerful stimuli whether they be positive or negative, intentional or unintentional. Teachers must therefore be sure that they model and communicate a positive, enthusiastic, consistent, and highly confident attitude toward physical and motor skills. In fact, it is probably safe to say that these teacher behaviors are prerequisites to the effective provision of instruction in physical education.

EVALUATION

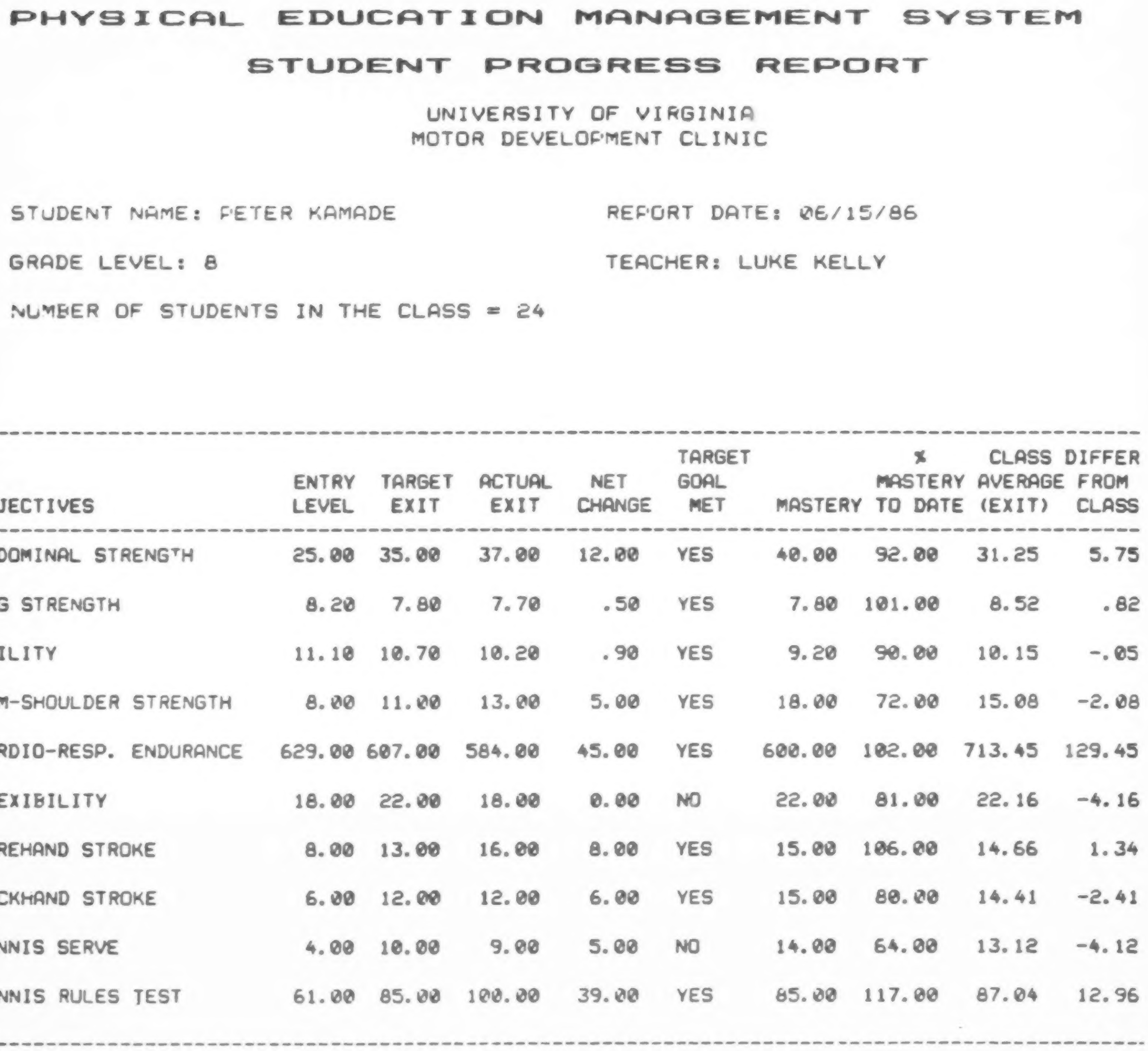
Evaluation can be formal and informal and occurs at two levels: student and program. During instruction, student evaluation is synonymous with continuous assessment and is an integral part of planning appropriate instruction and providing instructional feedback. Formal student evaluation is usually associated with making progress reports to assign a grade, determine the appropriateness of a given placement or develop a new IEP. Student evaluation is primarily designed to communicate to students, parents and others how individual students are doing in the program. Student evaluation reports commonly include the following information:

1. The instructional objectives that were worked on.
2. The student's entry status on each objective (present level of performance).
3. The student's exit status on each objective.
4. The student's expected progress on each objective (short term instructional objectives).
5. The student's actual net progress on each objective.
6. The student's status relative to his or her continuous progress (long range goals).
7. The student's status relative to his or her peers.

Figure 5 illustrates a sample student progress report generated by the Physical Education Management System (Kelly, 1986). The reverse side of the report contains a complete description of each objective and instructions on how to interpret each column of the report.

Figure 5

Sample Student Progress Report Generated by the Physical Education Management System (Kelly, 1986)



PHYSICAL EDUCATION MANAGEMENT SYSTEM

STUDENT PROGRESS REPORT

UNIVERSITY OF VIRGINIA
MOTOR DEVELOPMENT CLINIC

STUDENT NAME: PETER KAMADE

REPORT DATE: 06/15/86

GRADE LEVEL: 8

TEACHER: LUKE KELLY

NUMBER OF STUDENTS IN THE CLASS = 24

OBJECTIVES	ENTRY LEVEL	TARGET EXIT	ACTUAL EXIT	NET CHANGE	TARGET GOAL MET	MASTERY	% MASTERY TO DATE	CLASS AVERAGE (EXIT)	DIFFER FROM CLASS
ABDOMINAL STRENGTH	25.00	35.00	37.00	12.00	YES	40.00	92.00	31.25	5.75
LEG STRENGTH	8.20	7.80	7.70	.50	YES	7.80	101.00	8.52	.82
AGILITY	11.10	10.70	10.20	.90	YES	9.20	90.00	10.15	-.05
ARM-SHOULDER STRENGTH	8.00	11.00	13.00	5.00	YES	18.00	72.00	15.08	-2.08
CARDIO-RESP. ENDURANCE	629.00	607.00	584.00	45.00	YES	600.00	102.00	713.45	129.45
FLEXIBILITY	18.00	22.00	18.00	0.00	NO	22.00	81.00	22.16	-4.16
FOREHAND STROKE	8.00	13.00	16.00	8.00	YES	15.00	106.00	14.66	1.34
BACKHAND STROKE	6.00	12.00	12.00	6.00	YES	15.00	80.00	14.41	-2.41
TENNIS SERVE	4.00	10.00	9.00	5.00	NO	14.00	64.00	13.12	-4.12
TENNIS RULES TEST	61.00	85.00	100.00	39.00	YES	65.00	117.00	87.04	12.96

The Physical Education Management System (PEMS) was designed for adapted physical educators to assist them in managing large numbers of special education students and to provide a quantitative means by which to evaluate student progress and the appropriateness of physical education placements. The individual target exit values (short term goals) are set for each student by the teacher following preassessment and prior to initial instruction in the unit. The mastery levels indicate the long term goals for each objective, the point at which functional competency will have been achieved and instruction would be terminated. Students' progress in relation to the target expectancies and mastery provide the basis for monitoring and evaluating IEPs. The appropriateness of a given student's placement is interpreted by the direction and magnitude of the values in the last column (difference from the class average). If large positive or negative values are consistently obtained in this column, the student's placement should be reevaluated. Large negative values are usually indicative of high failure situations which should be immediately addressed.

Program evaluation is concerned with addressing two questions:

1. Overall, has instruction been effective - are students achieving target expectancies?

2. Overall, are program goals and objectives being achieved - are students mastering program objectives in accordance with the program plan?

Program evaluation is typically performed by looking at the cumulative performance of a class or a group of students as opposed to individual students. Figure 6 illustrates a sample Class Report generated by the PEMS. The report column headings are the same as the Student Report but the values represent the mean performance of the students in the class. These data can be used by teachers to determine how effective their instruction has been overall. If students are not achieving target expectancies or making reasonable progress toward mastery levels on specific objectives, then the teacher needs to evaluate how these objectives were taught:

1. Was enough time spent on these objectives:instruction, practice, on task?

2. Were the instructional activities and games appropriate?

3. Were facilities, equipment and staff used efficiently?

4. Were students grouped effectively for instruction?

5. was appropriate and timely feedback provided?

6. Were the students ready to work on these objectives?

If problems are identified at the lesson level, these should be remediated first. If more time is found to be required or the objectives are judged to be inappropriate, then changes should be made to the program plan. The purpose of program evaluation is to allow for continuous review and revisions to the program plan to ensure that the program goals will be achieved.

Figure 6

Sample Class Progress Report Generated by the Physical Education Management System (Kelly, 1986)

PHYSICAL EDUCATION MANAGEMENT SYSTEM

CLASS REPORT

BIG VALLEY SCHOOL DISTRICT
SMITH ELEMENTARY

REPORT DATE: 03/15/85
GRADE LEVEL: 03/15/85
NUMBER OF STUDENTS IN THE CLASS = 6

TEACHER: MR. JOE JOHNSON
CLASS: MRS. SMITH'S CLASS

OBJECTIVES	CLASS MEAN ENTRY	CLASS MEAN EXIT	CLASS MEAN NET CHANGE	CLASS MEAN TARGET	CLASS MEAN TARGET CHANGE	MASTERY	CLASS MEAN % MASTERY	% OF CLASS ACHEIVING MASTERY
ABDOMINAL STRENGTH	17.33	21.83	4.50	21.33	4.00	35.00	62.38	******
LEG STRENGTH	8.55	7.88	.66	7.88	.66	6.50	82.45	16.66
SOCCER RULES TEST	68.33	90.83	22.50	90.00	21.66	90.00	100.92	66.66
KICKING TEST	5.33	9.33	4.00	10.00	4.66	10.00	93.33	66.66

SPORTS AND RECREATION OPPORTUNITIES

As discussed in the beginning of this chapter, physical education is one of several fields which contribute to the total physical and motor development of students. Physical education, particularly for individuals with mental disabilities, must be integrated with community-based recreation programs if it is truly going to play a valuable role in later life. In simple terms, physical education is primarily responsible for the development of physical and motor skills and recreation programs are responsible for providing opportunities for citizens (children and adults) to use their skills in recreational activities. The transition from school-based instructional programs to community-based recreation programs does not just magically happen for individuals with mental disabilities. Physical educators must, therefore, take the initiative to integrate their programs with the local recreation programs and to initiate and facilitate communication between these programs.

The ultimate goal of physical education is to provide students with functional skills they can use to the maximum extent possible as independently as possible in the community during their leisure time for personal enjoyment. Physical and motor skill based activities are the most desirable for individuals with mental disabilities since they contribute to maintaining good health and in many cases to job performance. Sport and recreational programs must be carefully selected or created to meet this goal. In many communities, unfortunately, the existing programs tend to dictate the goals.

Special Olympics, for example, in many schools provides an excellent opportunity for students to apply the physical and motor skills they have learned in physical education in a competitive environment at local, state, regional, and national competitions as well as to experience and learn many other valuable skills. This program, however, should not be used as a substitution for physical education or as the only sports and recreational opportunity available to the mentally disabled. Instead, Special Olympics should be viewed as one of several available opportunities in the community that should be used as a stepping stone towards independence. Special Olympics does offer a wide variety of team and lifetime sports many of which could have carryover value to later life (i.e., swimming, skiing, bowling), however, for many individuals with mental disabilities competing in these events is tied directly to the school aged years and limited to a few specific events. If this is the only skill instruction and recreational experience they are provided, what skills and opportunities are they prepared to take advantage of after the school years?

Transition programs should be designed which stress the development of independent and functional physical and motor skills in community-based settings. For the majority of individuals with mental disabilities, these programs should stress participation and enjoyment rather than competition and focus on individual rather than team sports. Given the cognitive and social characteristics of the mentally disabled, it is more realistic to expect them to be able to individually (or possibly with one or two other persons) organize and participate in an individual sport activity (swimming, biking, hiking, dance, etc.) than to organize or play in a team sport. For example, it would be more reasonable to expect individuals with mental disabilities, living in a group home in the community, to participate in aerobic dance classes at the local recreation center than it would be for them to successfully participate in the local competitive softball league.

SUMMARY

Physical education is a direct service which should be provided to all students with mental disabilities. Although individuals with mental disabilities have historically shown relatively large deficits in their physical and motor development, research indicates that these deficits can be remediated and that functional physical and motor skills are very important for the mentally disabled in terms of their occupational and leisure needs after the school years. Instruction in physical education for the mentally disabled should be guided by a comprehensive plan which outlines long term goals (end of the K-12 program) and a sequential series of objectives that leads to the attainment of these goals. The program plan can be established by either modifying the regular physical education curriculum for the mildly disabled or by designing individualized programs for the more severely disabled. Qualitative (criterion-referenced) tests should then be used to assess, prescribe, implement, and continuously evaluate instruction. Teachers should model and communicate in their attitudes and behaviors high levels of interest, enthusiasm, and confidence in motor skills and their ability to teach these skills. Lessons should be planned and instruction implemented to maximize student success, time on task, and repetition of desired behaviors on specific instructional objectives. Demonstrations and physical manipulation are used during instruction to communicate both correct and incorrect performances. Non-competitive games and activities should be carefully selected to match specific instructional objectives. Explicit and systematic feedback should be communicated to all students during instruction. Continuous evaluation procedures, both formal and informal, must be employed so that both teachers and students can be apprised of their performance and appropriate and timely changes made to instruction or the program plan. Finally, the physical education program must be integrated with the community-based recreation programs to facilitate the transition from instruction to independent use of leisure skills in community recreation settings.

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Wessel, J.A. (1980). *I CAN preprimary motor and plan skills*. East Lansing, MI: Instructional Media Center Marketing Division, Michigan State University.

Wessel, J.A. (1979). *I CAN sport, leisure and recreation skills*. Northbrook, IL: Hubbard.

Wessel, J.A. (1976). *I CAN primary skills*. Northbrook, IL: Hubbard.

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Chapter Fifteen

Reading

Linda Higbee Mandlebaum

OVERVIEW

The purpose of this chapter is to provide teachers with an overview of several techniques for teaching reading to students with mental disabilities. The techniques included were selected because they allow the teacher to capitalize on the characteristics of effective teachers described in Best Practices in Mental Disabilities: Volume One, (1987).

The chapter is organized in two sections. The first section deals with basic considerations in teaching reading. The second section is further divided into characteristics of effective teachers with specific examples of teaching strategies described.

BASIC CONSIDERATIONS

In selecting the approach to be used in teaching reading, the practitioner will want to keep two things in mind. First, the effectiveness of the teacher is probably more important than the teaching method used (Kirk, Kliebhan, & Lerner, 1978). With this in mind, the instructor will want to select a reading method with which he or she is comfortable and enthusiastic. The teacher can demonstrate the effectiveness of the program to his or her satisfaction and to the satisfaction of others by using appropriate measures as discussed in the section on measuring reading behaviors.

A second, related aspect a teacher will want to consider is how he or she views reading because this will have an impact on the reading approach that is selected. To be comfortable and enthusiastic about a program, the teacher's view of reading should match the reading approach. For instance, a teacher who believes reading is learned by first learning to identify letters and their sounds will select an approach to teaching reading which focuses on phonics instruction. Another teacher who believes that students first need to know a list of frequently used words will select a reading program that teaches sight words. A third teacher who believes students learn words that are already in their vocabulary might select a language experience approach for beginning reading instruction. A fourth teacher may consider all of these to be important in beginning reading and would choose a program that includes all of these features.

Several techniques for teaching reading will be discussed in this chapter, although a full discussion of the techniques is beyond the scope of the chapter. Therefore, the methods described here are briefly overviewed and a list of references is provided for those who want to read further.

Teaching Reading

Teaching students to read is not an easy task, nor is there one best method for teaching reading. Teachers need to know a variety of techniques and have access to different materials for teaching. That way, if one technique fails, another technique can readily be used. This section is organized by statements that describe effective teachers followed by one or more methods that illustrate the statement.

Effective Teachers Use Appropriate Curriculum

Students are entitled to a curriculum that is both functional and interesting. In addition, the curriculum should base new tasks upon tasks that are already familiar and that relate to the student's experiences (Tisdale, 1985).

Functional Curriculum

A functional curriculum allows students to get around in their environment both in and out of school. For this reason, words that are used in everyday life should be taught. Figure 1 includes a list of survival words and phrases compiled by Polloway and Polloway (1981) that should prove useful to teachers of students with mental disabilities. In teaching these words, teachers will want to plan for generalization; therefore, the words will be most effectively taught in the context in which they are found in the environment. Teachers, of course, will also want to teach the meanings of the words and what actions the students should take when they see the words. For instance, the word "stop" is usually found on a stop sign and means cease all motion and look both ways before going on; "poison" on a jar or bottle means that the contents can cause illness or death and should not be eaten; "thin ice" on a body of frozen water means the ice cannot support your weight and you should not walk or skate on it. While it is not feasible to bring all examples to the students or to take the students to all the examples, it might be possible to find pictures in the newspaper and magazines or to take pictures of examples such as a sign on a condemned house. Parents and other teachers might be willing to help collect examples if they were given a list of the words and phrases for which you were looking.

Other examples of functional reading materials are menus, checks, labels on cans and boxes, coupons, directions (e.g., how to find a restaurant), instructions (e.g., how to put a bicycle together), forms, grocery lists, medicine bottle labels, newspapers, telephone books, recipes, timetables, television guides, want ads, and vending machines. Each example of functional reading material has its own vocabulary and style of writing and the more types of writing students can read, the more independent they can be as adults.

Interesting Material for Elementary Students

Regardless of the teaching method used, students and teachers alike benefit when the reading material is interesting. On the one hand, the materials mentioned in the previous section tend to be interesting to students of all ages since these are things seen in their environment and students can see benefits in being able to read them. On the other hand, the stories in many of the readers which are usually used to teach reading are written with a limited vocabulary and tend to be uninteresting. However, if teachers utilize the many excellent books on the market today they can capitalize on appealing stories. A wide variety of books are available that can provide practice through repetition (i.e., patterned-language books) and predictability (i.e., predictable books).

Patterned-language books are those that repeat a phrase throughout the book such as "I don't know why she swallowed a fly! I guess she'll die" (Bonne, 1961). An example of a patterned-language book that begins with a familiar phrase but that ends with a new and intriguing twist is Cat on the Mat by Wildsmith (1982). While this book begins "The cat sat on the mat," it is unlike other linguistic readers in that Wildsmith adds a variety of animals (that do not rhyme with cat) to the mat, and he focuses on the natural desire of cats to be left alone. It is beautifully illustrated, repetitive, and is written in very large print that is easy to see. Once the students have learned to read the book, to ensure that they have not just memorized the order or that they are reading the pictures, the sentences could be put on sentence strips for the students to sequence.

Patterned-language books have been shown to be effective in teaching beginning readers (Bridge, Winograd, & Haley, 1983) In addition, the presence of words which appear frequently within a story facilitate word identification by students with mental disabilities (Allington, 1980).

Figure 1

A List of Survival Words and Phrases

50 Most Essential Survival Words

1. Poison
2. Danger
3. Police
4. Emergency
5. Stop
6. Hot
7. Walk
8. Caution
9. Exit
10. Men
11. Women
12. Warning
13. Entrance
14. Help
15. Off
16. On
17. Explosives
18. Flammable
19. Doctor
20. Go
21. Telephone
22. Boys
23. Contaminated
24. Ladies
25. Dynamite
26. Ambulance
27. Girls
28. Open
29. Out
30. Combustible
31. Closed
32. Condemned
33. Up
34. Blasting
35. Gentlemen
36. Pull
37. Down
38. Detour
39. Gasoline
40. Inflammable
41. In
42. Push
43. Nurse
44. Information
45. Lifeguard
46. Listen
47. Private
48. Quiet
49. Look
50. Wanted

50 Most Essential Survival Phrases

1. Don't walk
2. Fire escape
3. Fire extinguisher
4. Do not enter
5. First aid
6. Deep water
7. External use only
8. High voltage
9. No trespassing
10. Railroad crossing
11. Rest rooms
12. Do not touch
13. Do not use near open flame
14. Do not inhale fumes
15. One way
16. Do not cross
17. Do not use near heat
18. Keep out
19. Keep off
20. Exit only
21. No right turn
22. Keep away
23. Thin ice
24. Bus stop
25. No passing
26. Wrong way
27. No fires
28. No swimming
29. Watch your step
30. Watch for children
31. No diving
32. Stop for pedestrians
33. Post office
34. Slippery when wet
35. Help wanted
36. Slow down
37. Smoking prohibited
38. No admittance
39. Proceed at your own risk
40. Step down
41. No parking
42. Keep closed
43. No turns
44. Beware of dog
45. School zone
46. Dangerous curve
47. Hospital zone
48. Out of order
49. No smoking
50. Go slow

Polloway & Polloway, 1981, pp. 446-447.

Predictable books are those that enable a student to make a good guess about what will come next or how the story will end. An example of a story in which the reader can predict what will come next is Teeny Tiny (Bennett, 1986). In this story, the "teeny tiny woman put on her teeny tiny hat and went out of her teeny tiny house to take a teeny tiny walk." Not only are the words "teeny tiny" repeated frequently in the sentence, but it is fairly easy to predict what the emphasized words would be if they were unknown. An example of a story in which the ending can be predicted is Hey Kid! (Gelman, 1977). In this story Sam, a friendly creature who talks non-stop, is getting on the kids' nerves and students can predict that he is about to be put back in the crate he came in and given to someone else.

"Predictable Storybooks" (Allen & Allen, 1986) includes three sets of predictable books that are spiral bound and printed on cardboard stock in large print. In addition, the teacher's guide comes with lesson plans and directions for students to make their own copies of the books--a bonus for students who do not have books at home.

A list of patterned-language and predictable books is included in Figure 2. Teaching methods using these materials will be provided in sections that follow.

Interesting Material for Secondary Students

Many methods can be used at all grade levels if the material selected is appropriate to the age and interests of the learner. Finding interesting materials for secondary-level students who read at an elementary level is, however, more difficult than finding materials for elementary students. One concern of all teachers of older students is that reading materials do not appear to be designed for elementary students. Material that has an elementary look will result in students avoiding reading. With this in mind, several materials are suggested that may be of use to secondary-level teachers. The materials may be used with many of the reading techniques described in this chapter.

Newspapers. Newspapers can provide material on a wide variety of topics. While some articles will be too difficult, those written about topics students have an interest in and some background information about may be easier (Henk, 1987). Many students will want to read the comics section only, but with some encouragement they will find other sections of the newspaper to be of interest.

Magazines. Magazines are available on most topics in which students express an interest. For example, there are magazines on popular singers, lyrics to hit songs, wrestling, motorcycles, bicycling, hunting, cars, war, hairstyles, clothing, horses and other animals, cooking, and hobbies and crafts of all types, etc. The "Real Reading Program" (EBSCO Curriculum Materials) features activity cards students use with magazines.

Star. Star (Truman Publishing Company, 200 West Marcus Street, Seattle, WA 98119) is a publication about popular singers, athletes, and other well-known people secondary students are interested in. It is published each month during the academic year and each issue contains about 15 articles. The articles, written on approximately a third- or fourth-grade level, always contain one or more pictures of the featured star along with a one-page story, questions over the article, and activities to do. Also, the publisher gives teachers permission to duplicate the articles for use in the classroom.

Figure 2

Patterned Language and Predictable Books

Adams, P. (1974). This old man. New York: Grossett & Dunlap.
Alain. (1964). One, two, three, going to sea. New York: Scholastic Press.
Aliki. (1962). My five senses. New York: Thomas Y. Crowell.
Aliki. (1968). Hush little baby. Englewood Cliffs, NJ: Prentice-Hall.
Aliki. (1974). Go tell Aunt Rhody. New York: Macmillan.
Antle, N. (1985). The good bad cat. Grand Haven, MI: School Zone Publishing Co.
Asch, P. (1977). Monkey face. New York: Parents' Magazine Press.
Ballan, L. (1972). The animal. Nashville: Abingdon Press.
Balian, L. (1972). Where in the world is Henry? New York: Scholastic.
Barret, J. (1970). Animals should definitely not wear clothes. New York: Antheneum.
Barton, B. (1973). Buzz, buzz, buzz. New York: Scholastic Press.
Baskin, L. (1972). Hosie's alphabet. New York: Viking Press.
Battaglla, A. (1962). Old Mother Hubbard. New York: Golden Press.
Baum, A. & Baum, J. (1962). One bright Monday morning. New York: Random House.
Becker, J. (1973). Seven little rabbits. New York: Scholastic.
Beckman, K. (1969). Lisa cannot sleep. Danbury, CT: Franklin Watts.
Bellah, M. (1963). A first book of sounds. New York: Golden Press.
Bennett, J. (1986). Teeny Tiny. New York: G.P. Putnam's Sons.
Berenstein, S. & Berenstein, J. (1971). The B book. New York: Random House.
Bonne, R. (1961). I know an old lady. New York: Scholastic Press.
Brand, O. (1974). When I first came to this land. New York: G.P. Putman's Sons.
Brandenberg, F. (1970). I once knew a man. New York: Macmillan.
Brooke, L. (1968). John Crow's garden. New York: Frederick Warne & Co.
Brown, M. (1957). The three billy goats Gruff. San Diego, CA: Harcourt, Brace & Javanovich.
Brown, M.V. (1947). Goodnight moon. New York: Harper & Row.
Brown, M.W. (1949). The important book. New York: Harper Row.
Brown, M.W. (1952). Where have you been? New York: Scholastic.
Brown, M.W. (1954). The friendly book. New York: Golden Press.
Brown, M.W. (1956). Home for a bunny. New York: Golden Press.
Brown, M.W. (1971). The bus ride. Glenview, IL: Scott Foresman.
Burningham, J. (1970). Mr. Grumpy's outing. New York: Scholastic Press.
Camereon, P. (1961). I can't said the ant. New York: Coward, McCann & Geoghegan.
Carle, E. (1975). The mixed up cameleon. New York: Thomas Y. Crowell.
Carle, E. (1977). The grouchy ladybug. New York: Thomas Y. Crowell.
Carle, E. (1981). The very hungry caterpiller. New York: Putnam Publishing Group.
Charlip, R. (1964). What good luck, what bad luck. New York: Scholastic Press.
Charlip, R. (1971). Fortunately. New York: Parents Magazine Press.
Considine, K. & Schuler, R. (1965). One, two, three, four. New York: Holt, Rinehart & Winston.
Cook, B. (1962). The little fish that got away. New York: Scholastic.
deRegniers, B. (1961). The little book. New York: Henry Z. Walck.

deRegniers, B. (1965). How Joe the bear and Sam the mouse got together. New York: Parents' Magazine Press.

deRegniers, B. (1967). The day everybody cried. New York: Vicking Press.

deRegniers, B. (1968). Willy O'Dwyer jumped in the fire. New York: Atheneum.

deRegniers, B. (1972). May I bring a friend? New York: Atheneum.

Domanska, J. (1971). If all the seas were one sea. New York: Macmillan.

Duff, M. (1972). Johnny and his drum. New York: Henry Z. Walck.

Duff, M. 91978). Rum pum pum. New York: Macmillan.

Einsel, W. (1962). Did you ever see? New York: Scholastic press.

Emberly, B. (1967). Drummer Hoff. Englewood Cliffs, NJ: Prentice-Hall.

Emberly, B. (1969). Simon's song. Englewood Cliffs, NJ: Prentice-Hall.

Emberly, B. & Emberly, E. (1966). One wide river to cross. New York: Scholastic Press.

Emberly, E. (1974). Klippity klop. Boston: Little, Brown & Co.

Ets, M. (1955). Play with me. New York: Viking Press.

Ets, M. (1972). Elephant in a wall. New York: Viking Press.

Flack, M. (1932). Ask Mr. Bear. New York: Macmillan.

Galdon, P. (1973). The three bears. New York: Scholastic.

Galdon, P. (1981). The three billy goats Gruff. Boston: Houghton Mifflin.

Galdon, P. (1984). Henny Penny. Boston: Houghton Mifflin.

Galdon, P. (1984). The three little pigs. Boston: Houghton Mifflin.

Galdon, P. (1985). The little red hen. Boston: Houghton Mifflin.

Gelman, R.G. (1977). Hey Kid! New York: Avon.

Ginsburg, M. (1972). The chick and the duckling. New York: Macmillan.

Greenburg, P. (1968). Oh Lord, I wish I was a buzzard. New York: Macmillan.

Gregorich, B. (1984). Jog, Frog, jog. Grand Haven, MI: School Zone Publishing Co.

Guilfolle, E. (1957). Nobody listens to Andrew. New York: Scholastic Press.

Guilfolle, E. (1962). The house that Jack built. New York: Holt, Rinehart & Winston.

Hoban, T. (1972). Count and see. New York: Macmillan.

Hoffman, H. (1968). The green grass grows all around. New York: Macmillan.

Hutchins, P. (1968). Rosie's walk. New York: Macmillan.

Hutchins, P. (1971). Titch. New York: Collier Books.

Hutchins, P. (1972). Good night owl. New York: Macmillan.

Joslin, S. (1968). What do you say Dear? New York: Scholastic Press.

Kalan, R. (1981). Jump, frog, jump! New York: Scholastic.

Keats, E. (1971). Over in the meadow. New York: Scholastic Press.

Kellogg, S. (1985). Chicken Little. New York: William Morrow & Co.

Kent, J. (1971). The fat can. New York: Scholastic.

Klein, L. (1958). Brave Daniel. New York: Scholastic Press.

Krauss, R. (1948). Bears. New York: Scholastic Press.

Krauss, R. (1952). A hole is to dig. New York: Harper & Row.

Krauss, R. (1970). Whose mouse are you? New York: Collier Books.

Krauss, R. (1971). The lion's tail. Glenview, IL: Scott Foresman.

Krauss, R. (1972). Good night little abc. New York: Scholastic Press.

Langstaff, J. (1955). Frog went a-courtin'. New York: Harcourt, Brace & Javanovich.

Langstaff, J. (1957). Over in the meadow. New York: Harcourt, Brace & Javanovich.

Langstaff, J. (1971). Gather my gold together: Four songs for four seasons. New York: Doubleday.
Langstaff, J. (1974). Oh, a-hunting we will go. New York: Atheneum.
Laurence, L.E. (1969). We're off to catch a dragon. Nashville: Abingdon Press.
Lexau, J. (1969). Crocodile and hen. New York: Harper & Row.
Lobel, A. (1975). King Rooster, Queen Hen. New York: Greenwillow.
Lobel, A. (1979). A treeful of pigs. New York: Greenwillow.
Mack, S. (1974). 10 bears in my bed. New York: Pantheon.
Martin, B. (1967). Brown bear, Brown Bear, what do you see? New York: Holt, Rinehart & Winston.
Martin, B. (1967). Spoiled tomatoes. Oklahoma City, Bowmar.
Martin, B. (1970). A ghost story. New York: Holt, Rinehart & Winston.
Martin, B. (1970). Monday, Monday, I like Monday. New York: Holt, Rinehart & Winston.
Martin, B. (1970). The haunted house. New York: Holt, Rinehart & Winston.
Mayer, M. (1968). If I had. New York: Dial Press.
Mayer, M. (1975). Just for you. New York: Golden Press.
McGovern, A. (1967). Too much noise. New York: Scholastic.
Memling, C. (1961). Ten little animals. New York: Golden Press.
Memling, C. (1972). Riddles, riddles from a to z. New York: Golden Press.
Moffett, M. (1972). A flower pot is not a hat. New York: E.P. Dutton.
Nodest, J. (1963). Who took the farmer's hat? New York: Scholastic Press.
O'Neill, M. (1961). Hailstones and halibut bones. New York: Doubleday & Co.
Palmer, J. (1969). Ten days of school. New York: Macmillan.
Patrick, G. (1970). A bug in a jug. New York: Scholastic Press.
Peppe, R. (1970). The house that Jack built. New York: Delacorte.
Petersham, M. & Petersham, M. (1971). The rooster crows: A book of American rhymes and jingles. New York: Scholastic Press.
Polushkin, M. (1978). Mother, Mother, I want another. New York: Crown Publishers.
Quackenbush, R. (1965). Poems for counting. New York: Holt, Rinehart & Winston.
Quackenbush, R. (1973). She'll be comin' around the mountain. New York: J.B. Lippincott.
Quackenbush, R. (1975). Skip to my Lou. New York: J.B. Lippincott.
Rossetti, C. (1965). What is pink? New York: Holt, Rinehart & Winston.
Scheer, J. & Bileck, M. (1964). Rain makes a difference. New York: Holiday House.
Scheer, J. & Bileck, M. (1964). Upside down day. New York: Holiday House.
Sendak, M. (1962). Chicken soup with rice. New York: Scholastic Press.
Sendak, M. (1963). Where the wild things are. New York: Scholastic
Dr. Seuss. (1963). Dr. Seuss's abc. New York: Random House.
Shaw, C. (1947). It looked like spilt milk. New York: Harper & Row.
Shulevitz, U. (1986). One Monday morning. New York: Macmillan.
Skaar, G. (1972). What do the animals say? New York: Scholastic.
Sonneborn, R. (1974). Someone is eating the sun. New York: Random House.
Spier, P. (1961). The fox went out on a chilly night. New York: Doubleday.
Tolstoy, A. (1968). The great big enormous turnip. Danbury, CT: Franklin Watts.
Watson, C. (1971). Father Fox's pennyrhymes. New York: Scholastic Press.
Welber, R. (1974). Goodbye, hello. New York: Pantheon.
Wildsmith, B. (1962). Brian Wildsmith's abc. Danbury, CT: Franklin Watts.
Wildsmith, B. (1972). The Twelve days of Christmas. Danbury, CT: Franklin Watts.

Wildsmith, B. (1982). Cat on the mat. Oxford, Oxford University Press.
Withers, C. (1967). A rocket in my pocket. New York: Scholastic Press.
Wolkstein, D. (1977). The visit. New York: Alfred A. Knopf.
Wondriska, W. (1970). All the animals were angry. New York: Holt, Rinehart & Winston.
Wright, H. (1965). A maker of boxes. New York: Holt, Rinehart & Winston.
Zemach, H. (1965). The judge. New York: Farrar, Straus & Giroux.
Zemach, M. (1965). The teeny tiny woman. New York: Scholastic.
Zemach, M. (1976). Hush, little baby. New York: E.P. Dutton.
Zolotow, C. (1958). Do you know what I'll do? New York: Harper & Row.

Biographies. Biographies written for younger students frequently do not appear to be at an elementary level. For example, the series "Women of Our Time" was written for students from 7 to 11 years old, however, the size of print and illustrations would also be appropriate for secondary students. Dorothea Lange: Life Through the Camera (Meltzer, 1985), one of the books in the series, is written at approximately the sixth-grade level, but a high school student would not be embarrassed to read it. Troll Associates is another publisher that prints a series of biographies for readers experiencing difficulty.

High Interest. High interest, low vocabulary materials are available from several publishers. A few of those companies and the books they carry are noted below. Fearon Education features books for almost any area of interest (e.g., horror stories, sports, mysteries, romance, classics); Jamestown Publishers has two series of books written at about second and third grade levels that include comprehension activities (i.e., Attention Span Stories, Adult Learner Series); Dell Publishing Company lists several books on a variety of topics that students should find interesting. Finally, Janus Books offers several series of books that focus on survival skills.

Familiar Material. Students find materials with which they are familiar relatively easy to learn to read. Nursery rhymes, poems, and stories they have heard make it easy for them to predict what will happen next. For instance, if they have learned the finger play "Incy Wincy Spider," they will find it fairly easy to learn to read the book by the same name (Hawkins & Hawkins, 1985). Materials such as these can be used even when they are above a student's reading level because the student can predict what the words are going to be and can experience success.

Building on Students' Experiences

Students are naturally interested when reading material focuses on them and their experiences. For this reason, the language experience approach can be successful when other materials and methods have failed or are too difficult. The difficulty of the material can range from a one-word label for a picture to a story several pages in length. In addition, the story can be dictated by an individual or group and written by the teacher; or the story can be written by the student himself/herself as in the technique used by Fernald (1971) in which the student traces the word while saying it until he or she can write it from memory before writing the word in the story. The important aspect of the language experience approach is that it utilizes something the student already knows; the words are in the student's vocabulary and the experience is in his or her own background rather than the vocabulary and background of an author. This approach can be successful for secondary students (Eldridge, 1985) and adults (Rigg & Kazemek, 1985) as well as with elementary students (Spache, & Spache, 1986).

Effective Teachers Demonstrate Rather than Tell

Teachers can have a profound influence on students through the demonstrations or models they provide in the classroom. Three ways in which teachers can demonstrate reading behavior are described in this section: reading to students, sustained silent reading, and the ReQuest technique.

Reading to Students

Though it is sometimes difficult for teachers to find time to read to their students, it is nevertheless important to do so on a regular basis. Consider the student who is a poor reader and is either in an individual reading program or in a reading group which consists of other poor readers. If the student does not hear adults read (and many parents do not or cannot read), the only model heard is apt to be other poor readers. It is difficult to learn to enjoy books or to be encouraged to learn to read if the only model of reading is someone who does not read well. Students need to learn what good reading sounds like; this is an excellent reason to read aloud to students. Furthermore, reading aloud can be a springboard for discussions about problems students face in their daily lives (Sullivan, 1987).

Sustained Silent Reading

While the use of sustained silent reading (SSR) alone has not been demonstrated to improve students' reading ability, it has been shown to have a positive effect on student attitudes toward reading and a positive effect on reading ability when combined with a regular program of reading instruction (Moore, Jones, & Miller, 1980). In addition, the use of SSR provides the teacher with another opportunity to model reading behavior for students. The length of the silent reading period will depend to an extent on the ability of the students to read independently. While some classes may be able to maintain silent reading for only two minutes, over time the length of the sessions can be increased.

Three important aspects relating to the success of the program should be considered. First, the students should be expected to read during the entire session (have them mark, write down, or skip words they do not know). Second, the teacher must model the behavior that is expected of the students; that is, the teacher must read during that period. If a teacher does anything other than read during silent reading time, the message that is conveyed to the students is that reading is not a worthwhile activity. Third, the silent reading should be followed by an opportunity for students to share information about the books they are reading.

ReQuest Technique

The ReQuest technique, designed by Manzo (1979), is intended for use with students who can "read" the material but do not comprehend what they have read. Using this technique the teacher demonstrates question-asking behavior which encourages students to comprehend the text.

In order to use this method effectively, both the teacher and student should have copies of a passage that is at the student's instructional level and that has a predictable ending. In brief, the procedure follows these steps:

1. The teacher explains to the student that the purpose of the method is to improve the ability to remember and understand what is read.

2. Next, the teacher and student look at the title or picture and discuss what the story might be about. The student is asked to explain why he or she gives an answer (e.g., You said this story was going to be about school. What is in this picture that makes you think it is going to be about school?).

3. The teacher and student read the first sentence silently. The teacher then closes the book while the student asks questions about the first sentence. Even a simple sentence can lead to several questions. For instance, "Jeff ran to school" could lead to questions such as: Who is the story about? Where did Jeff go? How did he get to school? Do you think Jeff was in a hurry? Why do you think so?

4. When the student has run out of questions, he or she closes the book and the teacher asks questions. The teacher should try to model question-asking behavior by asking as many higher-order questions as possible (e.g., Why do you think Caren got mad?)

5. Continue the reading-questioning format until a point in the story is reached where the end of the story can be predicted. At that point, have the student predict what might happen.

6. The student then reads the rest of the passage silently and discusses the end with the teacher.

Not only does this technique improve comprehension skills, but the student is also given the opportunity to formulate and ask questions. With the teacher providing a model of question-asking behavior, that behavior is likely to improve in the student.

Effective Teachers Provide for Successful Practice

Effective teachers ensure that their students work on material on which they can obtain at least 80% accuracy (Rosenshine, 1983). Applying this concept to reading requires finding materials appropriate to the student's reading level and not simply giving them the next reader in the series. In order to provide students with material at the proper level, the teacher will need to determine what that level is.

Finding the Student's Instructional Level

In reading, the student's instructional level is that level at which he or she reads 55-75 correct words per minute with no more than eight errors (Deno, Mirkin & Wesson, 1984). To determine this level, follow these steps:

1. Collect at least three passages approximately 150 words long at each of several grade levels.
2. Have the student begin reading one-minute passages at the level at which you think the student will read at least 55 correct words per minute with no more than eight errors. Say to the student: "When I say 'start,' begin reading aloud at the top of this page. Try to read each word. If you wait too long for a word, I'll tell you the word. At the end of one minute, I'll say 'stop.'" (Deno, Mirkin & Wesson, 1984).
3. If the student reads fewer than 55 correct words per minute or makes more than eight errors, go to a lower level. If the student reads more than 75 correct words per minute, go to a higher level.
4. Continue testing until the student has read three passages at the same level at the rate of 55-75 correct words per minute with no more than eight errors--that is the student's instructional level.

Once the teacher has established the student's instructional level, comprehension questions should be asked to determine whether the student needs specific instruction to improve comprehension (e.g., ReQuest technique, cloze procedure). If instruction in comprehension is needed, it can be done using materials written at this same level.

Selecting Independent Reading Material

While not supported through research, a method students can use on their own to help guide them in selecting books to read is the five-finger technique. To use this technique, students open a book at random and begin reading a page. Each time they find a word they do not know, they put up a finger. If they have all five fingers of one hand up before they get to the bottom of a page, the book is probably too hard for them. They may choose to check the book out anyway, but at least they will have a warning that the book may be difficult for them. In addition, students can use this technique surreptitiously when they are in the library and other students will not usually be aware of what they are doing.

Effective Teachers Use Direct Instruction

Direct Instruction

Direct instruction has been demonstrated to be effective in numerous studies (Carnine, 1983). It is characterized by teacher-led group instruction which is academically focused and individualized. Direct instruction involves three steps: (a) demonstration, (b) student practice with teacher prompts and corrections, and (c) independent student practice (Baumann, 1984; Stevens & Rosenshine, 1981).

Demonstration. In this step the teacher demonstrates the skill providing the students with some structure or a method to use when they apply the skill on their own. For instance, in teaching students to find the main idea of a paragraph when no topic sentence is in the paragraph, the teacher may read aloud a sample paragraph. The teacher then demonstrates how to use the supporting details in the paragraph to determine what the main idea is (Baumann, 1984).

Student Practice with Teacher Prompts and Corrections. While the teacher continues to direct the activity, students are required to take an active part by applying the skills just taught. The teacher remains active by providing immediate feedback and by reteaching the skill if necessary. Using the example from above, the teacher would pass out copies of several short paragraphs. The students work on one paragraph at a time, reading silently and determining the main idea, with the teacher providing immediate feedback and giving prompts or reteaching if necessary (Baumann, 1984).

Independent Student Practice. Finally, the students practice the skill independently using materials that are similar to those that were used in the instruction phases. The final step in the above example would be for the teacher to give the students several paragraphs of which they are to find the main idea by working independently (Baumann, 1984).

Much of the initial research done with direct instruction focused on decoding skills. However, more recent research has demonstrated the effectiveness of this approach in teaching comprehension skills (Baumann, 1984; Hansen, 1981; Patching, Kameenul, Carnine, Gersten, Colvin, 1983). No matter what approach teachers take to teach beginning reading, they may find the use of direct instruction to teach higher order skills to be effective.

Effective Teachers Provide for High Levels of Task Involvement

Typical group reading lessons involve a group lesson followed by round-robin oral reading in which each student reads aloud a paragraph or a page. If the round-robin approach is used on a regular basis, it is not uncommon to find the attention of the students in the group wandering away from what is being read even if the teacher admonishes them to follow along in the text. Teachers might want to try one or more of the following alternatives.

Following Along While Listening

Hennings (1986) suggests that teachers read a story expressively to students while they follow along. The students then work in pairs re-reading the story to each other. This technique helps them learn the part words play in the importance of the whole story.

Reading in Unison

All students can actively participate when the whole group reads a selection aloud. In addition, there is always likely to be at least one person (e.g., the teacher) who knows a word, thereby eliminating the pressure or embarrassment some students feel when faced with an unknown word. If the material being read is at the instructional level, students will be able to keep up without much difficulty. While some teachers may be concerned about using this technique because they determine how students read independently, this can be resolved by using a monitoring system as the one described in the section on measuring behavior change.

Choral Reading

Similar to reading in unison, choral reading helps students learn the rhythm of language and gives them the confidence of reading with the support of a group. Choral reading, typically used with poetry, has six possible arrangements (Hoskisson & Tompkins, 1987; Tierney, Readency & Dishner, 1985):

1. Echoic in which the leader reads a line which is repeated by the group;
2. Refrain in which the leader reads the main part of the poem and the group, the refrain;
3. Antiphonal or dialogue in which two or more groups each read a part of the poem;
4. Line-a-child or line-a-choir in which three or more individuals or groups read parts, with some parts being read in unison;
5. Unison in which the entire group reads together; and
6. Cumulative in which one group or person starts the poem and another group or individual joins in with each line or stanza.

When reading a poem using one of the choral reading techniques, a group usually practices several times to master the rhythm and timing. Students may even want to add sound effects to increase the effectiveness of the reading.

Repeated Readings

The method of repeated readings has been demonstrated to improve fluency and comprehension (Bos, 1982; Herman, 1985). While students are usually directed to read as quickly and accurately as possible, there is some evidence that to improve comprehension it may be necessary to ask students to remember as much as they are able as they are reading.

The material for this procedure should be at the student's instructional level and should be short enough to be read in about three minutes. This will allow the student to read the material several times in a short amount of time. Any of several different procedures could be followed in using repeated reading. Some possibilities are described below.

1. Have the student read the passage several times silently or aloud to himself/herself and then aloud to someone else.
2. Have the students read the passage once to themselves and then work in pairs, each reading a passage to the other. When they have both finished, they switch partners and read the passages again.

3. The teacher or a volunteer can record a passage on a cassette for the student to listen to and follow along several times before reading the passage aloud. In using this technique the person doing the recording will want to tell the student when to turn the page. Commercially prepared recordings can also be used; however, the recording should also have some indication of when to turn the page.

4. Another version of the taped story is for the student and teacher to read a story in unison while it is recorded. The student then listens to the tape several times. This type of unison reading is similar to the Neurological Impress Method that has been used with some success with disabled readers (Memory, 1981). The difference between this version of the taped story and the Impress Method is that the student reads the material several times, whereas in the Impress Method the material is read only once without a tape recorder.

Some teachers may hesitate to use a repeated readings approach because of a concern that students may become bored reading the same passage several times. However, if passages that the students enjoy are selected for this technique, they will not quickly tire of the passage. In fact, repeatedly reading a passage can be a confidence builder for a pupil who becomes aware of his or her improvement. Teachers who are also parents will recall that their own children ask for favorite stories to be read repeatedly and never seem to tire of them. If boredom does become a problem, one motivation for improvement might be to arrange for a student to read a story, once it is mastered, to a younger class.

Shared Book Experience Using Big Books

The use of big books as the focus of shared reading activities can give readers positive experiences with printed material (Slaughter, 1983; Tierney et al., 1985). In utilizing either teacher-made or commercially published big books, teachers can read aloud to students while pointing to the words being read, have students join in during rereadings, and have students match or identify individual words in the text.

Using Peers, Volunteers, and Aides

To prevent teachers from having to hear the same stories hundreds of times and to give students additional practice, they could be allowed to read to other persons in the classroom, such as same-age or cross-age peers (Chiang, Thorpe & Darch, 1980; Cooke, Heron, Heward & Test, 1982; Nevi, 1983), classroom aides, and adult volunteers. Persons used in this capacity on a regular basis need to be instructed on what to expect, how to respond to students when they make an error, and how to give praise.

Providing a Wider Audience

As students improve and gain confidence in their reading, they enjoy sharing this ability with others. Such an opportunity also gives them additional practice and a reason to master a story. The principal, the secretary, a crossing guard, a custodian, a cook, or the librarian can each occasionally be called upon to listen to a child read a book which has been mastered. Many teachers are happy to have students read a book to their class. In addition, persons in retirement homes are often delighted to provide an ear for a young reader.

Effective Teachers Provide Wait-Time, Cues, and Prompts

Ignore Errors that do not Matter

Goodman (1967) was one of the first to recognize that all errors are not equal. A student who sees the word "father" but says the word "dad" is comprehending the text and substituting a word that means the same as the one printed. The error, or miscue, is irrelevant and attention does not need to be called to the substitution. After all, good readers are not perfect readers since they make miscues that do not matter when they read. What good readers do instead is monitor what they are reading and, when they make a relevant error, they reread and correct that error using the strategies they know. When teachers insist that students read every word correctly, they are creating word-callers rather than readers. However, attention does need to be called to errors when they change the meaning of the text. Two suggestions for handling these errors follow.

Give the Student Wait-Time. Teachers spend many hours carefully teaching students to use phonetic analysis, structural analysis, and context cues to decode unknown words. Unfortunately, when a student makes an error or miscue while reading, teachers may fail to allow the student sufficient time to apply those skills that have been learned. Instead, after only a brief hesitation, the teacher fills in the word or begins giving prompts to help the student decode the word. In fact, teachers have modeled this behavior so well that if they do not respond quickly enough, another student will say the word.

Focus on Meaning. When a student does not self-correct errors that do not make sense in the text, it is possible that he or she is not monitoring the passage for meaning. One way to help students improve their self-monitoring and word identification skills is to use an oral reading for meaning strategy (Taylor & Nosbush, 1983). This procedure involves four steps used with the student on a one-to-one basis.

1. As the student is reading aloud, record any miscues that the student has made that do not make sense.

2. When the student has finished reading, give praise for something that was done well; focus particularly on self-corrections. Encourage the student to do this more often when the miscue does not seem to make sense to the text.

3. Discuss one or two miscues that the student made that did not make sense and were not self-corrected. Read the sentence with the miscue that the student made and ask which word did not make sense. Use contextual and phonetic analysis strategies to help the student figure out what the word should be. For example, if the student read "The frog jumped into the poured," the teacher could ask two questions: Which word did not make sense? What word that begins with p would make sense?

4. Provide instruction on the skills the student had trouble with during oral reading.

Effective Teachers Give Independent Assignments that Relate to the Lesson

To be effective, seat work should reinforce what was taught in the lesson and provide additional practice (Sedlak & Paulson, 1985). Most workbooks and worksheets that accompany basal texts are structured to provide practice on the entire spectrum of reading skills. As a result, the workbook pages and worksheets focus on isolated skills that the student may or may not need and they often have little to do with the content of the story. Teachers should keep this in mind as they select assignments to reinforce a skill that has just been taught or to extend the topic of a story.

Related Reading Assignments

The more students read, the better they read (Guzzetti & Marzano, 1984). With this in mind, have students extend the lesson by reading additional material. Whether the reading program is based on library books or on a basal program, material related to the lesson can usually be found. For instance, if the story in the basal was about a bear, a librarian will probably be helpful in locating several other books at different reading levels about bears. Students could be assigned to read at least one book and be prepared to report on the book to the group. Books that are too difficult for the students to read independently might be recorded on cassette for students to listen to as they follow along in the text.

Other materials that relate to the topic could be located for students to read, such as bookmarks with bears, cereal boxes (whose spokespersons happen to be bears), greeting cards with bear illustrations, plays featuring bears (e.g., "Goldilocks and the Three Bears," Big Book of Plays, 1983), poems about bears, posters with pictures of bears, recipes for making bear claws, and wordlists with words about bears, etc. When parents and other teachers know you are collecting material about a topic, they will usually offer appropriate materials.

Related Seatwork Assignments

Numerous seatwork assignments related to a reading topic can also be located. Among the many activities available for the topic of "bears" are (a) a sequencing activity for "Goldilocks and the Three Bears" (Evans & Moore, 1982), (b) a "bare facts" book report form (Evans & Moore, 1984), (c) a word categorizing activity with "bear" as the featured word along with several other bear activities (Bauman & Zinkgraf, 1985), and (d) a matching sizes activity featuring "the three bears" (Church, 1984). Activities related to the topic (e.g., bears) that focus on a skill a student needs can be selected as seatwork. Teachers who are willing to share materials will probably learn that they have a wealth of activities of many topics available within their own building.

Effective Teachers Integrate Subject Matter

When a topic is introduced in reading, it can be extended by integrating it into the other areas of the curriculum. With a little imagination a topic could be the feature of the day or week. Some suggestions to extend the topic of "bears" are:

Listening

After asking the students to listen for specific information, the teacher could read a story about bears. The students would then give the information they had learned.

Speaking

While students look at the wordless picture book Deep in the Forest (Turkle, 1976), they could tell the story of the little bear who finds himself in Goldilock's place. Talk about the meaning of terms such as "bear hug" or "hungry as a bear."

Writing

Have students write the story of "Goldilocks and the Three Bears" in their own words or write a new ending to the same story. Other students could write a report about different kinds of bears.

Study Skills

Students could use the card catalog in the library to look up other books about bears or make a bibliography of books in the classroom that are about bears.

Mathematics

Have students answer story problems about bears.

Social Studies

Study how the expansion of man has effected the bear population and what areas of the word bears live in today.

Science

What hibernation is, how bears prepare to hibernate, and what other animals hibernate could be studied.

Art

Bear puppets could be constructed. Bears could be drawn or painted using a wide variety of materials.

Music

Songs about bears could be sung. Students could make up their own songs about bears.

Physical Education

Bears could be utilized in any number of activities such as tossing a ball or bean bag at a bear or running a relay race in which students pass a bear to the next runner instead of a baton.

Effective Teachers Measure Behavior Change

No discussion on the teaching of reading would be complete without a section on measuring behavior change because of the profound influence it can have on teaching. One requirement of most special education teachers is the use of standardized tests to demonstrate the improvement that students make over a school year. However, while annually administered tests can provide some useful information, such tests do not provide information on the daily or weekly basis that teachers need to evaluate the effectiveness of their instruction. One of the most important parts of an effective reading program is the continuous measurement of change. Research has indicated that students of teachers who measure reading behavior on a regular basis will make more progress than those whose teachers do not (Deno, Mirkin & Chiang, 1982). The measurement itself does not make the difference in reading progress; instead, the measurement allows the teacher to make changes to improve the student's program when an approach is not working.

One method of continuously measuring reading progress which correlates highly with standardized measures of reading is described by Deno, Mirkin, and Chiang (1982). This technique involves counting the number of correct words read per minute and is similar to the technique for finding the student's instructional level described earlier.

1. In determining the student's instructional level, the teacher finds the level at which the student could read three passages at one grade level at the rate of 55-75 correct words per minute. The median number can used as the pretest data and plotted on a graph.

2. At the opposite end of the graph, the teacher plots the goal or the rate at which the student should be reading at the end of the instructional period (e.g., nine weeks, semester, year).

3. An aim line is drawn which connects the pretest data and the goal.

4. Three times each week the student reads for one minute from a passage at his or her instructional level. The teacher graphs the median number from these three measures.

Any time the point determined in the previous step falls below the aim line three times in a row (i.e., three successive weeks), it is time to change the reading program because the current program is not effective.

Effective Teachers Provide Opportunities to Respond in a Manner Consistent With Achievement Measures

Once teachers know what achievement measure will be used to assess students' progress, they will know what behaviors will be measured and how they will be measured. Students need to be given opportunities to practice their responses in the way they will be tested. The method described above for measuring continuous progress in reading requires students to read out loud. This is a familiar behavior for most students since they frequently read out loud as part of their reading lessons. However, many measures used to show progress require behaviors that may not typically be required of them.

Most school systems require students to take group-administered achievement tests. The format for these tests often is one in which the student reads an item in a booklet and marks an answer by filling in a circle with a pencil. Unfortunately, this is not a format students use frequently in the classroom. As a result, their performance on the test may be lower than they are actually capable.

Even individually administered tests can have formats with which students are not familiar. One individually administered reading test has students complete an item following this format: hot,cold/sun:___. Students who have never learned this format will probably do poorly even if they can read all of them items.

Teaching the test items is not the solution being suggeted for this dilemma. Rather teachers should teach students how to respond to these formats using items that are not on the test and then give them an opportunity to practice the format until they are comfortable with it.

SUMMARY

This chapter included descriptions of several approaches to teaching reading which are illustrative of the characteristics of effective teaching. The importance of selecing approaches about which the teacher is enthusiastic is stressed as is the importance of placing students in materials at the appropriate level of difficulty and monitoring student progress. Teachers are encouraged to select the approaches they like and which they can demonstrate are effective with their students.

Teachers are further encouraged to remember that students are taught to read because they have a need beyond basal readers. Reading should be made relevant for the student whether it is reading a sign to know which bathroom to enter, reading the menu at Burger King, filling out a job application, reading for entertainment, or reading to learn how to put a bicycle together.

The biggest challenge to the teacher will probably not be teaching children who see their parents read every day and who have been read to frequently, but the children who never see their parents read and see no use for reading. Teachers are asked to surround their students with reading and with a need to read and to make reading relevant. Finding ways to do this may not be easy, but it will certainly make teaching interesting and challenging.

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Chapter Sixteen

Science

James R. Patton

OVERVIEW

Of all of the subject areas that are taught to students, science may be one of the most intriguing as well as one of the most feared by many teachers. For some students this subject area may be the most relevant part of their school day. On the other hand, depending on how it is taught, it could also be one of the most boring aspects of students' curriculum.

Rossman (1983) provides an excellent example of how science can be real to students. His example involved a "teachable moment" which occurred at the beginning of a science lesson with a group of fourth graders. Without warning, one of the students "cut the cheese" and the group responded in a predictable fashion. Rossman abandoned his planned lesson on fossils and immediately pursued this opportunity to discuss the reality of digestion. Many of the components of excellent science instruction subsequently took place.

This chapter will attempt to convey the enthusiasm and challenge of teaching science to students who have learning-related problems. The first section provides a basis for teaching science to special populations, highlighting what the literature says about this topic. The next section, the crux of this chapter, provides practical information related to curriculum, instruction, programs and materials, general suggestions for teaching this subject, and a list of resources. The chapter concludes with some final comments about where to go from here.

BASIC CONSIDERATIONS

Background

Most students are very curious about the world in which they live, often resulting in a natural interest in learning more about their respective environments. When teachers share this same enthusiasm the stage may be set for some fascinating learning.

Science and its sibling, social studies, have often been depicted as "second class subjects." This statement does not imply that they are not important areas of the curriculum; however, more attention has been given to other subjects such as reading, language arts, and mathematics. This is particularly true for special learners. In a study conducted by Patton, Polloway, and Cronin (1986), it was found that a significant number of students in special education programs were not receiving any science instruction at all.

It seems that many special education teachers do not feel comfortable teaching science. This may be due to a number of reasons. First and foremost is that few teachers receive adequate training in this area. Patton and colleagues (1986) found that nearly 42% of the special education teachers surveyed received no training of any type. A second factor which is related to the first one is that many teachers have very little experience teaching this subject, thereby increasing their reluctance to do so. Another concern voiced by teachers is that they are insecure about the content of science. To be sure, there is always some apprehension about being asked questions which you do not know the answers. Nevertheless, this concern can be addressed and should not prevent teachers from teaching science. For the most part one has to become comfortable with the reality that you will not have the answers to every question and therefore must be ready to turn such situations into a challenge for both the student and the teacher.

The value of science instruction for special learners can be argued for many of the same reasons that it would be for students who are not experiencing learning-related problems. Ditchfield (1987) provides a strong case for teaching science to any student: "As a means of studying the world around us, and making sense of it, science has much to offer as way of working. It begins by asking questions . . . and develops into posing hypotheses, testing out such hypotheses by experiment and interpreting the outcomes" (p. 37). A few other reasons are listed below:

1. Science activities can broaden and enrich the experience base of students.

2. Special learners can benefit from activities which are based on reality and have predictable outcomes.

3. Manipulation of concrete objects can facilitate conceptual learning.

4. Science activities can involve the learning of cause and effect relationships.

5. There are many opportunities to develop and refine thinking and problem solving skills.

It is also important to understand that there are three major goals implicit in science education: content/ knowledge, skills, and attitudes. First, there is a certain amount of information in the areas of life, physical, and earth science which needs to be covered. Second, and just as important as the content goal, is the development of various inquiry skills which are related to the study of science. Interestingly, these inquiry skills are useful in other areas of the curriculum as well and will be discussed later in this chapter. The last goal involves the creation of a scientific attitude which is best explained as a "need for seeking rational answers and explanations to natural and physical phenomena" (Cain & Evans, 1984, p. 9). All three of these goals should be considered in the development of science programs for learners.

Review of the Literature

There is a paucity of literature on the teaching of science to special populations. What is available is mostly descriptive rather than empirical. Although this is changing, there still is very little research which has been conducted in this area. In general, professionals who have written about science education for special learners argue that it should be given more attention. Unfortunately, it is still very difficult to determine the current status of science instruction for students with learning problems. In one of the few studies to try to examine the present state of affairs, Patton and associates (1986) noted some trends:

1. A significant number of students are not receiving science instruction (e.g., 38% of the self-contained classes);

2. many students with mild disabilities in mainstreamed settings for science;
3. of those teachers who do teach science, nearly half devote less than 60 minutes per week;
4. special education teachers generally utilize regular education curricular sequences;
5. relative infrequent use of science materials which are specifically designed for students with disabilities;
6. nearly 60% of the teachers surveyed used a regular education textbook; and
7. very few teachers have received training in how to teach science.

A few studies have been conducted which seem to indicate that certain programs have been successful with special learners (Ball & Danglade, 1978; Davies & Ball, 1978; Esler, Midgett, & Bird, 1977; Menhusen & Gromme, 1976; Wilson & Koran, 1973). It is curious that so few studies have been conducted and the ones that have been are becoming dated. A few years ago, Frith and Mitchell (1980) highlighted the need for more conclusive evidence which would validate the efficacy of science education for special populations. To date, not much has happened.

Some research has been done which focuses on particular instructional techniques. For instance, Lovitt and colleagues (Lovitt, Rudsit, Jenkins, Pious, & Benedetti, 1985; Lovitt, Rudsit, Jenkins, Pious, & Benedetti, 1986) have examined the effects of modifying a physical science textbook for seventh grade students. In a different line of research, Scruggs, Mastropieri, and their associates (Mastropieri, Scruggs, McLoone, & Levin, 1985; Scruggs, Mastropieri, Levin, & Gaffney, 1985; Scruggs, Mastropieri, McLoone, Levin, & Morrison, 1987) have studied the use of mnemonic techniques in the acquisition of science facts.

Another area which has received limited attention yet is very important is the nature of science education for students with mild disabilities who are mainstreamed into regular education science classes. The little information that does exist in this area typically includes recommendations and suggestions for helping students (c.f., Patton & Andre, 1989; Schulz & Turnbull, 1983) but no indication of how these pupils are doing.

Traditional Teaching Methods

Think back and try to recollect what your elementary science education was like. For many of us, it consisted of a textbook exclusively with very little hands-on involvement. The usual scenario was read the chapter, define the vocabulary words which were listed at the beginning of the chapter, and answer the questions which were presented at the end of the chapter. It is a wonder why any of us chose science as a college major.

Heavy reliance on textbooks as the primary vehicle for delivering science instruction was commonplace in the 1950s. After the Soviet Union launched Sputnik in 1957, there was a wholesale revamping in the way educators thought science should be taught. As a result, in the early 1960s a number of major federally-funded science curriculum projects were initiated. The goal was to develop programs which emphasized inquiry and process rather than content. By the end of the decade and into the 1970s, these newly developed programs were promoted and their implementation was begun in many schools around the nation. It is quite clear that these programs had a major impact on science instruction by encouraging a more "hands-on" character. This influence could be witnessed in the evolution of more laboratory-oriented textbook series of recent years. Recently, there seems to be a trend back to the former emphasis on content acquisition through the use of textbooks in some areas of the country (see Bindel, 1985).

For the most part, there seems to be five identifiable approaches to teaching science. All of them can be appropriate for use in special settings and will be discussed later. These orientations include (a) textbook, (b) process/inquiry programs, (c) specialized programs, (d) customized programs, or (e) eclectic approach.

BEST PRACTICES

This section is devoted to presenting practical information which is immediately useful in classroom situations. It is divided into four parts. The first subsection examines the curricular make-up of science instruction. The second subsection highlights various instructional approaches, programs, and strategies for teaching science to special learners. The next subsection presents selected instructional materials which teachers should find useful. The last subsection offers lists of promising resource materials that may be extremely helpful.

Before getting into the bulk of this section, it seems worthwhile to identify some guiding principles for teaching science to special populations. It is suggested that teachers keep the following ideas in mind:

1. Make your science instruction activity-oriented;

2. attempt to relate science topics to the students' everyday experiences;

3. choose a curriculum that is interesting to the students and to you;

4. consider the linguistic and conceptual demands of the curriculum as some students may have great difficulty with these areas; and

5. establish an efficient system of managing your classroom, paying particular attention to establishing sound rules and procedures for your science period.

Curricular Considerations

There is no one curricular sequence in science. As mentioned earlier, most elementary and secondary science courses are elements of or entirely devoted to one three components: life science (the study of living things including zoology, botany, ecology); physical science (the study of nonliving things including chemistry, physics); and earth science (astronomy, meteorology, geology).

To understand what a K-6 curricular sequence might look like, a list of the major topics covered in a popular textbook series is presented below. The series selected is the Addison-Wesley Science program.

K:

- Health & Safety
- Animals
- Weather
- Our Senses
- Everyday Things
- Water
- Moving Things
- Earth Beneath Our Feet
- Plants
- Foods

1:

- Animal Needs
- Plant Needs
- Pushes and Pulls
- Water and Ice
- Air
- Light
- Time
- Shells
- Growth
- Your Body
- Space for Things
- Soil

2:

- Seeds
- Living Things in Fall and Winter
- Standard Units
- Weather
- Food and Your Health
- Matter
- Particles
- Sound
- Work and Energy
- Traces of Living Things
- Living Things in Spring
- Energy from the Sun

3:

- Communities of Living Things
- Measurement - A Science Process
- Motion & Location
- Air - An Invisible Push
- Bones and Muscles
- Shadows and Light
- Sunlight on the Earth and Moon
- Heat and Temperature
- It All Depends!

4:

- Life Cycles
- Water and the Land
- Electric Light Circuits
- Cells, Tissues, & Your Body
- Sliding, Rolling, & Friction
- Air Around Us
- Stars - Night and Day
- Vibrations and Sounds
- Ocean and Freshwater Environments

5:

- Classifying Living Things
- Rocks in Layers
- Changes in Matter
- Your Nutrition and other Needs
- Magnets and Their Uses
- Winds and Convection
- Paths of Light
- Forces and Motion
- The Moon - Our Nearest Neighbor
- Interdependence of Living Things

6:

- Changing and Preserving Our Environments
- Water in the Air
- Images and Refraction
- Earth in Space
- Electric Charges and Currents
- Using Forces
- Changes in the Land
- Living Things - Continuity and Change
- Populations
- Energy and Energy Problems

This topical sequence is only illustrative and is not meant to represent the majority of curricular sequences found at the elementary level. Upon examination of the various topics covered, it is clear that the three major areas of science discussed above are addressed. (For a tabular comparison of five major textbook series and the topics they cover, see Polloway, Patton, Payne, & Payne, in press).

Evolving out of the philosophy of science education prevalent in the late 1960s and 1970s came a heightened awareness of the importance of certain skills associated with the process of science education. These skills, commonly referred to as inquiry skills, are typically integrated into science programs. Regardless of which approach a teacher chooses to follow in providing science education to special learners, the incorporation of these skills into instruction is strongly recommended. The most important inquiry skills and accompanying descriptions (Cain & Evans, 1984, pp. 8-9) are provided below:

1. Observation: using the senses to find out about subjects and events
2. Classification: grouping things according to similarities or differences
3. Measurement: making quantitative observations
4. Communication: using the written and spoken word, drawings, diagrams, or tables to transmit information and ideas to others
5. Data Collection, Organization, & Graphing: taking quantitative data and making sense out of it, primarily through graphic techniques
6. Inference: explaining an observation or set of observations
7. Prediction: making forecasts of future events or conditions based upon observations or inferences
8. Data Interpretation: finding patterns among sets of data that lead to the construction of inferences, predictions, or hypotheses
9. Formulation of Hypotheses: making educated guesses based on evidence that can be tested
10. Experimentation: investigating, manipulating, and testing to determine a result

To help appreciate how these skills can be integrated into science activities, an example is presented in Table 1. This example comes from a science unit that was implemented recently with 4th and 5th grade students. The general topic being studied was marine biology and the specific subtopic under study was a reef organism known as a hermit crab. The Table demonstrates only some of the many examples of inquiry skills being utilized in this series of activities designed for this unit.

Table 1

Examples of Inquiry Skills

INQUIRY SKILL	HERMIT CRAB ACTIVITY
Observation	Identification of body parts
Measurement	Timing of crab races
Classification	Species identification
Communication	Description of habitat poetry
Data Collection, Organization & Graphing	Shells preferred by crabs
Inference	How crab attaches to inside of shell
Prediction	Location/Movement of crabs as a function of time of day and tides
Data Interpretation	Conclusions derived from information collected (e.g., species data)
Hypothesis Generation	Generation of ideas about how often crabs change shells based on growth patterns
Experimentation	How crabs will react to changes in their habitats

Instructional Programs

The focus of this section is to provide teachers with specific ideas for designing science programs for special learners. Topics to be covered include the advantages and disadvantages of the various approaches to teaching science as well as a brief description of some commercially available programs.

There are attractions and hindrances to all of the major approaches. Table 2 summarizes the features and gives examples of each approach to science instruction. Each of these will be discussed in some detail below.

Textbook Approach

Textbooks still play a crucial role in the science education of many students. This becomes even more pronounced as students enter the upper elementary grades (Teters, Gabel, & Geary, 1984). Patton and associates (1986) in their study of mildly handicapped classes found that approximately 60% of the teachers they contacted used a regular text in some way.

As Table 2 highlights, there are some persuasive reasons for using a textbook; leading the list of potential problems is the readability issue. Most of the current textbook series now come with laboratory kits, recognizing the need for more hands-on activities. Certain series, most notably the Addison-Wesley Science and Houghton-Mifflin Science have made a concerted effort to deemphasize the need to have good reading skills to enjoy and learne science. Another recent development is publication of secondary-level science materials which are designed for students with low reading levels (e.g., publications from Quercus and Project Earth).

Using textbooks requires that students be able to comprehend content that may be difficult to understand at times. Carnine and Silbert (1979) identified four areas which should be examined in helping students comprehend science textbooks: vocabulary level; content - in terms of the conceptual complexity; writing style and organization; and special features such as graphics and illustrations. It may be necessary to augment the textbook with additional activities to help students better grasp the concept being addressed.

Process-Oriented Approach

The second major approach to teaching science is to employ commercially-available process-oriented programs. Although these programs were developed for use in regular education, their implementation in special settings is warranted. This type of approach can be characterized as stressing skills over the accumulation of substantive information, accentuating doing and discovery, and involving teachers as facilitators. Table 2 lists the strengths and weaknesses of this approach. Three of the most widely used programs are briefly described below:

1. Elementary Science Study (ESS):
   Publisher: McGraw-Hill
   Grade Range: K-9
   Features: 56 individual units
   flexibility -- units can be used at different grade levels
   activity-oriented
   provisions for special students

2. Science Curriculum Improvement Study (SCIS/SCIIS):
   Publisher: Rand McNally
   Grade Range: K-6
   Features: 13 units (one for K; two for each grade level)
   complete science program
   emphasis on concept of "interaction"

3. Science -- A Process Approach:
   Publisher: Ginn and Company
   Grade Range: K-6
   Features: 15 modules per grade level
   sequence should be followed

Table 2

Analysis of Various Approaches [Source: Wood (1989)]

APPROACH	ISSUES RELATED TO SPECIAL LEARNERS		REMARKS
	POSITIVE FEATURES	NEGATIVE FEATURES	
TEXTBOOKS	*organized science program *useful for beginning teachers *excellenct resources *certain series contain many hands-on activities *teacher's guide may contain suggestions for working with special learners *most textbook series come with material kits	*readability problems *geared for average students *can be too content-oriented *may become only source of information *contents may be covered too quickly *content often presented apart from activities	*certain services have de-emphasized the need to have good reading skills [Addison-Wesley Science and Houghton-Mifflin Science *checklists exist to help teachers evaluate textbooks [see Cain & Evans, 1985; Price, Ness. & Stitt, 1982 *newly published texts of high interest, low readability are now available
PROCESS/ LABARATORY PROGRAMS	*stress inquiry/problem solving *minimize the need to be a good reader *activity-oriented *curricularly flexible *can be used with older students	*may be too discovery-oriented for some students *less teacher-directed instruction which some special students may require *require special instructional skills which not all teachers demonstrate or are comfortable with *may not address concept development appropriately for some students	*with some modification these programs can work with special groups *can be effectively used in combination with other programs *some of these programs have developed additional materials for working with special populations, e.g., ESS/ Special Education Teachers Guide [Ball, 1978]
SPECIALIZED PROGRAMS	*developed with special population in mind *minimize reading skills *programs designed for older students are functionally-oriented	*may not cover some important science topics *may differ from a school system's other science programs *probably will be used in non credit generating courses	*there are relatively few programs of this nature currently available *little empirical research exists validating their value *activities from these programs can be integrated into regular science program

CUSTOMIZED PROGRAMS	*can be based on interests, current issues, local needs
	*relevent
	*typically very "hands-on"
		*requires much teacher time
		*may not cover some important science topics
		*may not match the scope and sequence of the school system
		*may not address concept development appropriately
			*success depends on the following qualifies of the teacher
			  *resourcefulness
			  *organizational skills
			  *instructional skills
			  *curriculum development abilities
			*for older students this approach may be warranted to better prepare them for adulthood

It is the personal view of this author that programs such as these can be used effectively with special learners. However, approaches do require a different type of instructional role for teachers. It is essential that special education teachers do the following:

1. Become very familiar with the units/topics/modules.

2. Focus on preparation--if some modification is necessary, do it ahead of time.

3. Be prepared to provide more structure to the activities than is typically called for (e.g., specially-designed data collection sheets and/or graph paper).

4. Become comfortable with the role of facilitator through practice and experience.

Specialized Programs

The third type of approach to teaching science to learners with various disabilities is to employ specialized programs and materials which were purposely designed for these students. Table 2 contains information on the general features of such programs. The truth of the matter is that there are very few programs available and those that are may or may not be suitable to the needs of some special education settings. Furthermore, convincing empirical evidence as to the effectiveness of these programs is needed. Four programs are briefly outlined below:

1. Me Now:
   Publisher: Hubbard Scientific Company
   Grade Range: upper elementary
   Target Group: students with mild mental disabilities
   Features: life science program -- four units
   activity-oriented
   two year sequence
   activities -- small, discrete units
   reading minimized
2. Me and My Environment:
   Publisher: Hubbard Scientific Company
   Grade Range: junior high school
   Target Group: students with mild mental retardation
   Features: environmental science program -- five units
   three year sequence
   activity-oriented
   relevant to everyday life
3. Me in the Future:
   Publisher: Biological Sciences Curriculum Study
   Grade Range: high school
   Target Group: students with mild retardation
   Features: integration of science and career education - three areas/units
   adult interest level
   low readability level

4. Science Enrichment for Learners with Physical Handicaps (SELPH):
Publisher: Center for Multisensory Learning (Lawrence Hall of Science, University of California, Berkeley)
Grade Range: upper elementary
Target Group: students with learning problems
Features: life and physical science program -- nine modules
multisensory and activity-oriented
best used as supplemental program

Customized Approach

The next approach to be discussed is the customized program. This type of program is designed and developed completely by the teacher or team of teachers. The features of this approach are also presented in Table 2. Much time and certain skills are required to effectively develop one's own curricula. Anyone interested in pursuing program development should consult with the local school systems' science scope and sequence chart, examine commercial programs, and check out the instructor's manual from any of the Hubbard materials described in the previous paragraphs as these manuals contain a useful discussion on developing science curricula.

Eclectic Approach

The last orientation, although not listed in Table 2, is the eclectic approach. This seems to be a very popular way of teaching science as it capitalizes on many of the features of the different approaches discussed above. Many teachers have found that integrating a textbook series with activities and ideas from the other approaches provides them with a sound, comprehensive, and engaging science program.

Instructional Strategies

This section will cover topics which are directly related to what happens in the classroom. Specifically, attention will be given to the major parts of a science lesson, integrating other subject and skill areas into science, specific learning strategies that can help students, safety in the science classroom, use of microcomputers, ways to make the classroom "sciency", and recommendations as to what laboratory materials and equipment might be useful.

Components of a Science Lesson

Science lessons differ due to the major objectives to be accomplished and the nature of the activities to be performed. However, every lesson should be planned to accommodate individual differences and organized in advance. There are three major parts of every lesson: opening activities, main instructional activities, and closure activities.

1. Opening activities: This part of the lesson should do two important tasks. It should clarify to students what is to happen and attempt to engage them in the topic at hand. This latter goal can be accomplished through the use of an opening demonstration, by asking a provocative question, or capitalizing on a teachable moment like flatulation.

2. Main instructional activities: This part of the lesson is the actual "hands-on" part. It might require students to do something using any number of inquiry skills in the process and then for them to collect and organize data related to this activity. Subsequent to this, students will then have to make sense of what they have done.

3. Closure Activities: In closing the science period each day, it is important that students review what they have done, understand what they may have learned (i.e., relate to the real world), evaluate their performance, and be prepared for the next day's lesson.

As Polloway, Payne, Patton, and Payne (1985) note: "Following these major components of a science lesson, teachers can provide a certain structure to their lesson planning that is useful to them and helpful to their students (p. 348)."

Integrating Science with Other Subject/Skill Areas

Using science as the backdrop, many other subjects and skills can be interwoven in creative ways. Obviously, reading skills may be requisite for many science programs; however, it is relatively easy to incorporate other areas as well. A few selected examples will help to get this idea across.

1. Mathematics: It is actually difficult not to include math in the study of science. Many of the inquiry skills can involve the use of various math skills. For instance, in the hermit crab example (Table 1) measurement and computational skills are used throughout this unit. There is a commercial program which focuses entirely on this relationship between math and science (Project AIMS--"Activities for Integrating Mathematics and Science").

2. Music: One of the products of the unit on marine biology mentioned earlier was a "rap" song. The students generated the lyrics and then these lyrics were put to music using a pre-programmed rhythm device. Part of the song went like this:

   "There's a creature called sea anemone,
   That we studied in marine biology."

3. Art: In a science unit entitled "Appliance Science" in which students took apart broken household appliances and studied how they worked, it was very easy to extend this unit to include art activities. For instance, when old phones were dismantled, the many internal parts provided more than enough material to develop robots, spaceships, and many other creations.

4. Careers: Almost every science topic that is covered lends itself to the study of jobs, hobbies, and recreation. For example, the Elementary Science Study unit on "Clay Boats" which examines bouyancy can lead into a number of interesting adjunct topics related to different vocations and leisure time pursuits.

It is also possible to design an entire curriculum around the idea of integrating subject and skill areas. For instance, using a science theme as the foundation of the curriculum (i.e., ants), Nakashima and Patton (1986; in press) integrated all other subject areas into this broad-based theme of interdependence. This type of programming which is often used with high potential students has merit for use with other groups as well. However, basic skill development and remediation will often have to be part of the instructional program for most students with learning-related problems. For older students, this type of programming might be beneficial as it ties topics together through the emphasis on integration.

Specific Learning Strategies

All of the techniques associated with effective instruction are appropriate for use in science programs for special learners. Certain strategies have been suggested as particularly valuable and will be mentioned in this section.

If it becomes necessary to adapt science materials, teachers should strive to keep the changes at a minimum. Care should be taken so that changes made do not alter the concept being addressed. Lovitt and colleagues' (1985, 1986) adapted a seventh grade physical science textbook. Some of the adaptations which they made included structured outline formats and vocabulary practice sheets. These external learning aids were found by the researchers to enhance student performance.

If the intent is for students to remember factual information and if these students have problems in producing effective learning strategies for doing so, then teaching them certain strategies may prove helpful. Mastropieri and Scruggs (1987) suggest the use of transformational mnemonic illustrations (e.g., keywords or pegwords). These techniques involve transforming the information to be learned in such a way that it is eventually associated with a picture or image. These associations have been found to be easier for students to use in attempting to remember information.

Safety

One of the most important instructionally-related concerns is making science instruction safe. Perhaps more than any other subject area in the curriculum, science requires a firm commitment to safety. Teachers should anticipate and prepare for potential problems. Some points to keep in mind:

1. Rules and procedures should be demonstrated, practiced, and reviewed regularly.

2. Dangerous materials (if needed) should be secured and labeled "off limits."

3. Eyes should always be protected.

4. Fire extinguishers should always be readily available.

5. Allow sufficient time to perform instructional activities to avoid problems associated with haste.

6. Special instructions are required if new and unfamiliar equipment or materials are being introduced.

7. Appropriate supervision is advised at all times.

Use of Microcomputers

The proliferation of microcomputer technology in classrooms can be observed throughout the nation. The excitement of this technology can be found in science classrooms as well. Table 3 reviews some of the ways in which microcomputers can be utilized in science programs. In addition, important considerations regarding the use of these different types of applications are provided.

Important uses of microcomputers include some of the following ideas:

1. Tutorials to expand upon various topics which may be confusing to special learners.

2. Performance of dangerous or risky experiments through the use of simulations.

3. Specific facts which are being studied can be entered into a database to help students organize and later retrieve information.

4. Commercial databases are available for some topical areas (e.g., different types of animals).

5. "Electronic" field trips are possible by way of communication software.

6. Probeware which is connected to the microcomputer directly can make, display, and record measurements.

Teachers should also be interested in how microcomputers can help them manage their classrooms more efficiently. Software is now available which can keep track of student performance and ultimately determine their grades. Other software allows teachers to generate IEPs, create instructional materials, plan lessons, develop tests, determine the readability of instructional materials, and establish databases which can be used to store many types of information.

Making Classrooms "Sciency"

One way to spice up the appearance of a classroom is to give it a science "feel." This idea can be followed even by teachers who do not teach science per se. Some of the ways to make a classroom "sciency" are obvious and traditional (e.g., bulletin boards with science themes) while others are unique and untraditional (e.g., vivarium with live reptiles). Without too much difficulty, learning centers can be established where students can conduct experiments. Library books with science themes can be obtained and placed in locations so that they can be examined and read. Animal collections can be started and put on continual display. Various science stations can be set up; for instance, students can record and graph the temperature, barometric pressure, and humidity on a daily basis. Pictures of everyday items taken at very close range or at an unusual angle (similar to those appearing

Table 3

Microcomputer Applications

TYPE OF USE	DESCRIPTION	FEATURES	CAUTIONS
Drill & Practice	Reinforces previously learned information and provides student with practice	*many students need extra practice *the more sophisticated program include graphics, animation, and sound *best used as adjunct to ongoing program	*can be overused *does not teach new concepts *best to have students work independently *avoid software that draws attention to students who make an incorrect response
Tutorial	Presents new or previously presented material, then assesses the student's understanding of the information	*additional instruction for those who need more time to grasp concepts *best used as adjunct to ongoing instruction	*not the most effective way of presenting new information to special learners *best to have students work independently
Simulation	Allows students to experience vicariously real-life events which are not easily shown in a traditional setting	*powerful *can provide more concrete examples of abstract concepts *realistic *very useful with students with limited experimental backgrounds *require participation *suitable for cooperative arrangements	*problems can arise if students do not possess prerequisite knowledge and/or skills *readibility may be too high *may have too many rules *best to use after some introduction and exposure to the topic *students may need help in generalizing computer-displayed events to real world

TYPE OF USE	DESCRIPTION	FEATURES	CAUTIONS
		*provide immediate feedback to personal/group decisions *motivating *can substitute for certain dangerous situations (e.g., chemistry experiments with physically disabled students)	*some simulation take too long best to use "stop-time" simulations (i.e., one can stop and pick up again at a later time) (see Glenn & Rakow, 1985)
Gaming	Combines learning and enjoyment by providing chancy situations to which students react	*can enhance socialization *motivational *can improve students on task behavior *practice manual dexterity *adventure gaming requires problem solving skills	*not much of this software relates directly to science or social studies *some students cannot handle (e.g., distractible, overactive, physically disabled)
Problem Solving	Use of the microcomputer to solve real-life problems--can include programming	*helps students understand problems and the processes needed to solve them *gives students an appreciation of how microcomputers can be helpful	*may be too difficult *often requires teacher assistance and monitoring
Utility Applications	Use of microcomputers as an instructional tool for carrying out daily learning/life tasks word processing data management spreadsheets	*most students will need to know how to use these *certain programs are extremely helpful to special learners (e.g., spelling checks, outlining programs)	*the more organized and simpler program and better *students will need to be taught how to use these programs directly

TYPE OF USE	DESCRIPTION	FEATURES	CAUTIONS
	communication graphics probeware misc. programs	*prepared databases are available (e.g., animals) *local networking is possible	*keyboarding skills may be a problem *students need to use these programs regularly to maintain performance
Interactive Video	Allow visual segments to be integrated interactively into computer-based instruction through the use of videodiscs and/or video-tapes	*allow students to make choices about what they need *students can interact with the video segments *can be used with students of different abilities *provide realistic experiences--more so than computer-generated graphics *reduce the need to read *videodiscs can store large amounts of information	*videodiscs are expensive *limited availability of programs *some concepts can best be presented through other means (e.g., line drawings)

in Games Magazine) can be displayed. These ideas are only a few of many which are possible; the suggestion here is to encourage teachers to make classrooms engaging places to be.

Laboratory Materials and Equipment

Science activities very often require certain materials and equipment. Many of the programs described in this chapter come with the necessary items for accomplishing the proposed activities. Unfortunately, many of us have had to teach science with a bare bones operation, not having many available resources from which to choose. It is for this reason that a suggested list of common items is provided. This list (Table 4) is not an exhaustive one nor may it meet your personal needs perfectly. Nevertheless, it can serve as a guide for assembling a basis for teaching science. Obviously, for teachers of specific science topics at the secondary level, more sophisticated items may be indicated.

Suggested Resource Materials

Certain resource materials can assist in the planning and implementation of exciting science programs. This section will offer suggestions which are appropriate for teacher utilization as well as some materials which students can use.

Teacher Materials

Often teachers who conduct various science activities and cover different scientific topics want to know a little more about the concepts being addressed. Getting your hands on a sourcebook which does this may be advantageous. One such book for the elementary level is entitled A Sourcebook for Elementary Science (Hone, Joseph, & Victor, 1971)

A series of books which are full of good ideas for teaching science is the Brown Paper School Books published by Little, Brown and Company. Some of the titles include:

Beastly Neighbors: Or Why Earwigs Make Good Mothers
The Night Sky Book
Only Human: Why We Are the Way We Are
Blood and Guts: A Working Guide to Your Own Insides
The Reasons for Seasons
Gee Wiz! How to Mix Art and Science, or the Art of Thinking Scientifically

These books are stimulating and could even be used as a basis for developing your own customized program.

Teachers should also be aware of certain journals and periodicals which are valuable sources of research, current thinking, and instructional ideas. Some of these include:

Science and Children
Science Education
School Science and Mathematics
Journal of Research in Science Teaching
Science Teacher
American Biology Teacher

Table 4

Suggested Materials & Equipment
(Source: Polloway et al. (1989)

Common classroom items
1. cardboard
2. paper clips
3. popsicle sticks
4. razor blades
5. rubber bands
6. ruler
7. scissors
8. straight pins
9. tacks
10. tape (masking and regular)

Science related apparatuses
1. aquariums
2. balance, equal-arm
3. beakers, polyethylene
4. compass, magnetic
5. cylinder, graduated
6. dishes, petri
7. droppers, medicine
8. flasks (esp. 250 ml Erienmeyer)
9. funnels
10. hatchery/incubator
11. hot plate
12. microscopes and slides
13. models
14. nets, insect
15. pails
16. pipets
17. ring stand (with clamp and ring)
18. rubber stoppers
19. rubber tubing
20. small animal cages
21. test tubes
22. thermometers
23. tongs--"hot" utensil
24. wire gauze

Hardware equipment
1. garden spade
2. hammer
3. pliers (needle-nose)
4. screwdrivers (both types)

Materials from home and elsewhere
1. dish pans, rubber
2. film containers
3. jars
4. knives, forks, spoons
5. milk cartons
6. nails
7. #10 tin cans
8. plastic pitcher (large)
9. straws (paper and plastic)

Science-related materials
1. batteries, dry cell (1.5 volts, 6 volts, and flashlight)
2. battery holder for "D" battery
3. bell wire (insulated)
4. buzzer
5. candles
6. circuit switch
7. corks
8. filter paper (15 cm)
9. goggles, safety
10. light bulb recepticle
11. litmus paper
12. magnets (horseshoe and bar)
13. magnifiers, hand
14. prism

Chemicals
1. alcohol, rubbing
2. baking powder
3. baking soda
4. benedict's solution
5. cornstarch
6. flour
7. formaldehyde
8. gel
9. iodine
10. iron filings
11. lemon juice
12. limewater tablets
13. plaster of Paris (calcium sulfate)
14. salt
15. sugar
16. vinegar

Student Materials

There are two additional types of student-oriented materials of which teachers should be aware: trade books and student periodicals. Trade books are available on a wide range of science topics covering life, physical, and earth science. Cain and Evans state two good reasons for using these books: "Trade books provide children with additional sources of information. They often provide more motivation for the reluctant reader than does the textbook (1984, p. 156)." They also note that an up-to-date list of trade books is published every year in the journal *Science and Children*.

Students usually like to read magazines, and there are a few very good ones in the area of science. A selected list of some of the more popular ones follows:

3-2-1 Contact
National Geographic World
Your Big Backyard
Current Science
Ranger Rick

Another idea which can prove helpful is to capitalize on science topics which appear in other curricular materials. For instance, if basal readers are used, students are already reading the information and it might be advantageous to integrate some science activities that relate to the reading passage.

SUMMARY

This chapter on science instruction for special learners is designed and written to give teachers a glimpse at how this subject can be taught. Divided into two major parts, the chapter first reviewed what science education for special populations was all about and what was happening in special education classrooms in certain parts of the country. A brief examination of the limited literature bases was undertaken. In the second major section, practical information on teaching science in special settings was provided. Curricular content was discussed as were the different approaches to teaching science, highlighting the positive and negative features of each approach. Specific considerations concerning how best to implement science instruction were presented. Topics addressed included (a) conducting a science lesson, (b) integration of other subject/skill areas into science, (c) using learning strategies, (d) safety considerations, (e) microcomputer applications, (f) making classrooms "sciency", and (g) acquiring requisite laboratory equipment and materials. A principal goal of the chapter is to assert that teaching science can be exciting and valuable for both student and teacher.

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The book contains many activities, suggestions for obtaining resources, and other general information. It is a joy to read and can definitely stimulate thinking.

Corrick, M.E. (1981). *Teaching handicapped students science: A resource handbook for K-12 teachers*. Washington, D.C.: National Education Association.

This edited work contains 19 articles which suggest ways of helping special students in science. Perhaps its most outstanding feature is that there are a number of articles addressing needs at the secondary level.

Demanche, E.L. (1980. *The Hawaii nature study program*. Honolulu: Curriculum Research and Development Group, College of Education, University of Hawaii. (1776 University Avenue, Honolulu, HI 96822)

Although this is a program designed for use in Hawaii, it can and has been used in other areas of the country. It is fantastic. It contains four major topical areas: Small Animals, Insets, Plants, and Reef & Shore. The many hands-on ideas provide a great resource for developing science programs or activities that supplement already existing programs.

Stein, S. (1979). *The science book*. New York: Workman Publishing.

This book is another excellent teacher resource loaded with stimulating ideas. It suggests many different activities which most students should find interesting.

Stongin, H. (1976). *Science on a shoestring*. Menlo Park: Addison-Wesley Publishing.

How can you go wrong with a book whose title seems to epitomize the plight of most special educators who teach science. The major attraction of this resource is that it contains many activities which can be performed with everyday materials and equipment.

Chapter Seventeen

Sex Education

Jerry A. Caster

The contributions of Chris Brown, School Social Worker, and Dotty Solliday, School Nurse, Ruby Van Meter School, Des Moines Independent Community School District, are gratefully acknowledged. Their experience with sex education for students with mental disabilities has been invaluable.

OVERVIEW

The purpose of this chapter is to stimulate interest in providing sex education for students with mental disabilities. By and large, it is an area of instruction that receives little attention. In most schools it is handled informally and with little definition of scope, sequence, and desired outcome. In schools where sex education is now being formally offered, public concern about sexually transmitted diseases gives impetus to re-examining the content offered. In the field of mental disabilities, the teacher will continue to play the major role in determining whether or not students have access to a sex education program and, if offered, the nature of the program.

The need for quality sex education for all children and youth has never been greater. Children live in an overtly sexually oriented society. Television transmits sexual information to students of all ages with less innuendo and great explicitness. Vast hours of television consumption lower the age at which children become sexually aware and provide role models that compete with traditional values. The dialogue on TV and the lyrics of music alter past definitions of acceptable language and public conversation. In addition, many authorities describe teenage pregnancies as being at a crisis level. In 1985, 54 girls, age 14 and under, gave birth. In Iowa, during that same year, 72 percent of the live births to girls between 15 and 17 years of age were out of wedlock. That was almost 900 births (Adams, et al., 1986). Public interest in finding ways to prevent sexual abuse of children has been heightened by increased reporting of child abuse. Clearly, concern about the health risks of sexually transmitted diseases has done the most to change attitudes about the role of the school in providing sex education. Sex education is not only more acceptable now, but a major part of society is looking at public education as the primary vehicle for safeguarding the health of this generation and the next generation.

Sexually transmitted diseases, primarily AIDS, have created a situation where the schools are expected to do something to correct a serious societal problem. Whether or not public education can live up to this expectation and help prevent AIDS remains to be seen. Regardless, the opportunity is now present to openly respond to the sexuality needs of students with mental disabilities. It will be important not to teach just the mechanics of sex and disease prevention, but also to address the broader social-sexual needs of students as they develop from children to adults.

Even with increased acceptance of sex education in the schools, teachers still need to be cautious about teaching sex education. Sex education continues to be a sensitive topic for the classroom. The possibility of teachers being accused of promoting sexual behavior or tampering with the values of students will always be present. The only defense against such accusations will be the evidence of quality planning, communication with parents, and effective use of resources. This chapter provides information and a framework that permits teachers to begin to plan and initiate a successful sex education program.

BASIC CONSIDERATIONS

Iowa defines a larger percentage of the school population as being eligible for special education under the category of mental disabilities than do other states.

Most states, using the terminology "mental retardation" or "mentally handicapped", require students to perform close to two standard deviations below the mean on individual tests of intellectual performance. Iowa requires students to perform at least one standard deviation below the mean on individual tests. While impairment in adaptive behavior is expected for eligibility in Iowa and elsewhere, there is the potential for some Iowa students to have higher adaptive behavior skills than non-Iowa subjects included in research on sex education. This limits the ability to generalize research to all Iowa students. At the same time, higher adaptive skills may be associated with increased social opportunity, which makes the need for knowledge of sex education possibly even stronger.

Nationally, sex education for all students has received little attention. Writing in 1981, Gordon reported that scarcely 10 percent of public school students received anything approaching adequate sex education. There is no evidence to suggest that this has changed since that time. A review of the literature in mental retardation reveals that only 42 percent of the special education teachers surveyed in one study even included sexuality education in their programs and most had not covered the subject in depth or detail. Those same teachers reported that students had a need for sexuality information and were interested in learning more about it in school (Brantlinger, 1985).

Students in mental disabilities programs are described as being most like their nonhandicapped chronological age peers in physical maturation and emotional development than in other areas. This means that the need for sex education will parallel the need for information of nonhandicapped students of comparable chronological age. Blom states that "Children with handicaps have greater concerns about their bodies, body parts, and body functioning than do normal children" (1971, p. 361). If this is true, sex education is needed for the emotional well-being and self-concept of students.

Brantlinger (1985) studied the information and attitudes of students in secondary programs. From her interviews with 13 students, she found:

1. 10 of 13 students felt sex was dirty or nasty business
2. 8 of 13 felt premarital intercourse was acceptable
3. 3 of 5 girls claimed to have had no information about menstruation prior to their first period
4. 4 of 13 students reported parents would be upset if they were pregnant or if they got someone pregnant
5. 10 of 13 students reported marital or sexual problems that parents or siblings were having or had in the past
6. 3 of 13 students lived with both biological parents.

Students with disabilities did not feel that peers or siblings were good sources of sex education information. Instead, students identified teachers as their preferred source of information.

Teacher-provided sex education, as opposed to information coming from other sources, is easily supported by what is known about students with mental disabilities and their situations. In reality, that group might have a greater need for school-provided sex education than nonhandicapped students. The student with mental disabilities has limited access to information for a number of reasons. Lower reading levels make independent inquiry not possible. Language limitations and difficulty in processing abstractions make comprehension of terminology and understanding of biological causes and effects difficult. Also, sexual activity is conducted in private. Observational learning is not possible. While television and movies create awareness of sexual behavior, they do not provide understanding. Left to drawing their own conclusions from those sources, students are filled with misinterpretations and misinformation.

Most students in school are able to rely on their peer group for at least some information or clarification about sexuality. Here again, students with mental disabilities are at a disadvantage. At least a few students are isolated and have no peer group and, for some students, their peer group consists of other students with mental disabilities or low achieving students. Even the most socially skilled student is at a disadvantage because, to appear to be uninformed about sex by asking questions of nonhandicapped peers, may be a threat to belonging.

Impaired adaptive behavior is a characteristic of mental disabilities. One aspect of this impairment is usually reduced ability to observe the environment, identify appropriate behavior, and model it. It is known that the stronger and more visible the model provided, the easier it is for the disabled student to reproduce it. Unfortunately, the strongest and most visible models in school often are the profanity users, hallway lovers, and braggarts about alleged sexual activity. Television and films complicate understanding by consistently showing male-female relationships, masculinity, and femininity in ways that are unrealistic or unacceptable in real life. Also, for most students, the home is not an environment that provides sex education or corrects misinformation.

Students with mental disabilities have the same emotions, needs, and sex drives as other students (Gordon, 1971). They also have a reduced ability to acquire and process complex information. If the goal of the curriculum is to prepare students to function responsibly as adults in all aspects of life, sex education cannot be neglected.

BEST PRACTICES

Scope of Sex Education

The scope of the content of sex education is much greater than the term implies. It is more than understanding sexual intercourse. It is more than fetal development, birth control, or disease prevention. While this information is important, if it is all that is included, sex education is taken out of a personal, emotional, and social context. A major aspect of sex education is its focus on social relationships, emotions, choice-making, and responsibilities to self and others. In terms of human existence, the sex act itself has very brief meaning. In contrast, the attitudes, feelings, involvements, and consequences that precede and follow the sex act have lasting impact.

At various times sex education has gone by other names. Although there may be a feeling that alternative labels obscure the inclusion of "sex" information for students, the labels may more accurately project the broader image of sex education. Some terms used have been human growth and development, sexuality education, and family-life education. Family-life education perhaps most adequately conveys the image of the individual interacting with others, the array of choices that exists during life, and the understanding that responsibilities follow choices. Understanding the nature and scope of sex education has significant instructional importance. Viewed as a collection of facts, sex education becomes no more than memorization. However, if it is viewed as an application of information to real life situations, it must include a problem-solving approach so students can evaluate possible situations and reach personally acceptable conclusions about self and behavior.

What is referred to as social skills or personal relationship skills play an important role in sex education. This is highlighted by the following:

> |Sex education is| a process of . . . being human. (Kempton, 1975, p. 9)"
>
> The primary aim of sex education is to help each individual to understand himself |or herself| as a sexual being in the total sense and to use that knowledge in a responsible manner. (SECDC, 1971, p. 1)

The heavy emphasis on social skills and social responsibility in traditional curriculum for students with mental disabilities should provide a useful foundation for sex education. This is a foundation that can be effectively built upon to help students understand the many facets of sexuality.

Purposes of Sex Education

To teach in any content area requires a clear understanding of the underlying purposes of the instructional area. That understanding is the beginning point for planning and the basis for selecting content and methods. In all instruction, including sex education, the purposes must be interpreted so there is a fit between the content and the maturational level and needs of the students.

The purposes of sex education for the mentally disabled are that, after instruction, the student will:

1. Understand and appreciate his or her own sexuality.
2. Know basic male and female anatomy and male-female roles in the reproductive process.
3. Understand that no one has the right to do something sexual to him or her without permission.
4. Understand the responsibilities of parenting.
5. Understand that birth control methods should be used unless children can be provided for and are wanted.

6. Understand his or her role in protecting personal health and the health of others.

7. Know the resources available for persons who have been sexually abused or have contracted a sexually transmitted disease.

8. Understand the social-sexual values of society.

A few of the purposes warrant explanation. The purpose of students understanding and appreciating their own sexuality is one of these. This refers to a student understanding that he or she is a male or a female, understanding how his or her body develops, and knowing what is appropriate private behavior. Knowledge of the opposite sex is important, but the emphasis is on the characteristics of the student's own sex. Ultimately, the contribution of the student's own sex to reproduction and his or her role in child raising becomes important. The desired result is that students will be comfortable with their gender, their own values, and their relationships with the opposite sex.

An important purpose is student understanding of their own sexual rights. The naivete of most students makes it important they they understand what their rights are and the rights of others. It is important that students learn that they have control of their own bodies and they have the right to choices. For individuals that may be easily influenced by others, learning that it is acceptable to be assertive and to say "No" is the only way to insure that a choice truly exists.

The last purpose that warrants explanation is the understanding of society's social-sexual values. This purpose insures that students understand sexual taboos. Such things as the legal problems created by exhibitionism and voyeurism are included. Likewise, the prohibitions against incest, rape, and sexual abuse of children are taught. Students with mental disabilities are expected to conform to the standards of society. It is only reasonable that those standards be taught.

Much of the content of sex education is taught during the senior high school years. However, it cannot be emphasized enough that the foundation of factual information and values really occurs prior to that time. To wait until high school is to leave many students vulnerable to misinformation and social blunders, and to miss the period when student sensitivity to others is less hampered by peer pressure and incorrect perceptions of what it is to be a mature male or female. Table 1 shows the general scope and sequence of sex education for students with mental disabilities in grades K-12.

The organization and classification of content within sex education can be done in a variety of ways. Any system selected should be useful to teacher planning and the delivery of instruction. Kempton (1975, pp. 62-63) and Polloway, Payne, Patton, and Payne (1985, p. 390-391) offer different approaches for organizing the content of sex education. This is shown in Table 2.

Teacher Qualities

Knowledge of subject matter is required of a teacher of any subject. However, it is recognized that to teach sex education requires some additional qualities to be effective. Some of these include:

Table 1

Developmental Scope and Sequence of Sex Education for Mildly Mentally Disabled Students

	Biological Information	Health and Hygiene	Emotions and Feelings	Self Protection	Social Skills
Lower Elementary	Basic body parts & functions	Self-help skills	Awareness & labeling of feelings	Concept of private body parts	Gender identification
	Awareness of reproduction of species	Habits that promote cleanliness	Development of empathy	Understanding of acceptable/unacceptable touches	Knowledge of private/public behavior
				Concept of self-protection	Awareness of sex differences
				Ability to seek help	Awareness of biological relationships in immediate family
					Comfort in asking questions
Upper Elementary	Male/female reproductive systems (general)	Menstruation information & hygiene skills	Awareness & labeling of feelings	Expanded sense of private/public behavior	Understanding of slang terminology
	Terminology for body parts & functions				Understanding of appropriate conversation
	Reproductive process-conception through birth (general)	Expansion of responsibility for cleanliness & self care	Awareness of situations that evoke different emotional responses or feelings for self & others	Ability to reject sexual advances	Awareness of activities preferences of sexes
	Awareness of variation in maturational rates			Knowledge of adults available for assistance	Understanding of biological relationship between self & relatives
	Awareness of influence of genetics on personal characteristics				Comfort in asking questions

	Biological Information	Health and Hygiene	Emotions and Feelings	Self Protection	Social Skills
Junior High	Awareness of biological changes occurring in puberty Awareness of variations in maturational rates Awareness of birth control	Knowledge of sexually transmitted diseases and prevention/ Continued responsibilities for cleanliness & self care	Understanding of masturbation as sexual release Acceptance of self Relates own behavior to feelings of others	Understanding of right to say "NO" Knowledge of potentially dangerous situations Knowledge of sexual taboos Knowledge of adults/services available for assistance	Demonstrates appropriate private/public behavior Acceptance of consequences for own behavior Defines behavior in terms of appropriateness Knowledge of behaviors that promote friendships Comfort asking questions
Senior High	Male/female reproductive systems (specific) Reproduction process/conception through birth (specific) Knowledge of birth control resources	Knowledge of influences on well-being of unborn child Understanding of needs of newborn/young child Knowledge of sexually transmitted diseases & prevention/treatment Acceptance of responsibility for cleanliness & self care	Understanding of emotions associated with sexual arousal Understanding of emotional needs of others Understanding of physical/emotional changes of pregnant women Understanding of demands of parenthood Defines own interests, needs, dislikes	Establishes a rationale for readiness for sexual activity Defines personal rights & rights of others Ability to reject sexual advances Knowledge of adults/services available for assistance	Defines acceptable adult sexual behavior Knowledge of behaviors that promote friendships Defines reasons for dating Defines reasons for marriage Defines reasons for parenting Knowledge of adult life-styles (single, married, live alone, same sex roommates) Comfort in asking questions

Table 2

Approaches to Content Organization in Sex Education

Kempton's Organization

Biological and Psychological

1. Male and female anatomy and physiology, and their respective roles in human reproduction.
2. Understanding sexual impulses or body feelings and how they are aroused and controlled.
3. The recognition of genetics.

Sociological

1. Consideration of sex-related issues, such as population growth, control of obscenity, sex-related crimes and perversions, illegitimacy, and prostitution.
2. Existing laws governing sexual behavior and cultural mores.
3. Deviant behavior as defined by law and society.
4. Male and female roles.

Health

1. Correct information and elimination of misconceptions relating to menstruation, masturbation, sex play, early or late.
2. Discussion of cleanliness.
3. Information on sexually transmitted diseases, menopause, cancer detection tests, and physical examinations.

Relationships

1. Exploration of ideal and realistic relationships between individuals and their families, friends, lovers, and spouses.
2. Discussion of the feelings (love, anger, need, consideration) and their expression.
3. Roles and responsibilities in parenting.

Values

1. Through discussion, definition by each individual of his or her own set of values which relates to his or her sexuality and the sexual behavior of others.

Polloway's Organization

Awareness of Self

1. Sexual identification
2. Knowledge of body parts

Understanding of Maturity and Puberty

1. Development of genitalia and secondary sex characteristics
2. Menstruation
3. Emotional factors

Interpersonal Relationships

1. Dating, boy friends and girl friends
2. Sex roles
3. Peer pressure

Sexual Responsibilities

1. Intercourse
2. Pregnancy
3. Birth
4. Masturbation
5. Sexual varieties and alternative life styles

Sex and Marriage

1. Understanding a spouse's feelings
2. Frequency of sexual relations
3. Responsibilities within the relationship
4. Common problem areas

Child-Bearing and Rearing

Venereal Disease

1. Syphilis
2. Gonorrhea
3. Herpes virus
4. AIDS

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1. Comfort with own sexuality.

2. Comfort with the language of sex, both technical and slang.

3. Acceptance and tolerance of the feelings, attitudes, and values of others.

4. Honesty and directness in manner and speech.

5. Sense of humor.

Students with mental disabilities place even additional skill demands on those teaching sex education. Teachers must have the ability to adapt content to the learning characteristics of students. Making understandable the many abstractions associated with sex education is difficult. Likewise, adapting technical language to promote comprehension, probing to check student understanding, and re-teaching as necessary is not easy. A critical skill is the ability to help students with limited verbal ability develop their own opinions about correct behaviors and acceptable values. This requires the ability to structure lessons that insure accuracy of content learning, high student involvement, and open discussion of alternatives and consequences.

For a teacher to be able to let students develop their own opinions is influenced by his or her own attitudes about the sexuality rights of students with mental disabilities. The question, "Should students with disabilities have the same right to sexual expression as others in our society?" must be answered. The purpose of sex education is not to control the sexual feelings, drives, or behaviors of students. The intended purpose is to give students information that will permit them to understand their sexuality and to express it in a way that is satisfying. Teachers cannot control the behavior of students. However, teachers can insure that students are given the opportunity to understand the implications of sexual relationships and to form values of their own.

Special educators have little specific preparation in teaching sex education. Most special education teacher preparation acknowledges that sex education should be included in the curriculum, but the what and how are not addressed. This is an obstacle but it can be overcome. If the teacher believes that sex education is important, there are resources to assist in determining content, sequence, and methodology. However, comfort with content and personal attitudes are critical areas for teacher self-evaluation prior to teaching sex education to students.

Learning About Sex Education Instruction

Limited training and experience should not prevent a special education teacher from offering a sex education program to his or her students. There are resources available to overcome these barriers. Otherwise, for many students sex education would never be made available. Within every school building or school district are educators who are experienced with sex education instruction. Potentially, health educators, school nurses, home economics teachers, or science teachers can provide materials and ideas that will be useful. Some of the most useful information the teacher can collect is about the nature, scope, and sequence of the sex education program provided in the general education curriculum. Knowing what is taught and where it is placed in the curriculum will help to identify materials for evaluation and staff to whom specific questions about instructional methodology can be directed. Also, the special education teacher should be interested in learning if there are aspects of sex education that have not been included in the curriculum because of administrative or parent objection or if there have been past problems centering around sex education. This information could help the special educator avoid implementation problems.

The community may have resource persons that can be helpful. Many churches, individually and cooperatively, have developed and implemented excellent sex education programs for junior and senior high age youth. It is possible that some of the content sequences, materials, or references used in church-sponsored sex education programs would be useful. Public health nurses, outreach programs serving low-income mothers, or adult education programs might be useful resources in some communities. Another community resource is the local Planned Parenthood affiliate. Nationally, Planned Parenthood has contributed significantly to the literature that exists about the sexual knowledge, attitudes, and behavior of adults with mental retardation. Locally, this organization may have materials that can be borrowed or specialists in sex education available to discuss content and methodology. Even though the teacher may work with community experts in sex education, the teacher still maintains the responsibility for deciding what is appropriate for the students and acceptable in school.

Reviewing well-designed curriculum materials in sex education is an excellent strategy for learning both content and methodology. Fortunately, there are some outstanding materials that have been developed for students with mental retardation. These are described in Table 3. Because of the learning characteristics of the population, some of the programs are scripted and utilize slides to promote student understanding and class discussion. Some of the programs may be too expensive or more visually explicit than would be acceptable in some schools. However, the methods used to help students learn abstract concepts in those instructional programs will stimulate teachers to generate other ideas that could be used in their classrooms. It is important that teachers of students with mental disabilities review sex education content specifically designed for students that have similar needs and learning characteristics. In the development of the materials, great thought has been given to terminology and methods for concept development. Many of the programs are available for preview and some may be available in the libraries of Iowa's area education agencies (AEA).

The AEA library is certainly a resource for gathering information; it is the best place to start. The library can provide computerized searches of the literature, provide abstracts, and may have books or curriculum guides available. Each AEA should have available copies of Project Pride, described in Table 3. Also, previewing sex education films for different age levels in the AEA media center will give some idea of the content, scope, and sequence found in general education.

Using Resource Persons

Beyond being helpful in learning about sex education instruction, resource persons can be of great assistance to the special educator wanting to offer sex education. At the beginning, it is wise to review content and general methodology with the recognized experts in the building and school district. This could be the nurse, health educator, home economics teacher, science teacher, or another member of the faculty. If they are involved, they may offer useful suggestions. Even if they don't, their review provides credibility to what is being done. The ability to state that the purposes and content of the special education sex education program have been reviewed and are consistent with what general education students receive is important. This can promote greater acceptance by parents and administrators of the program that is to be implemented.

Building-based resource persons may be available and willing to co-teach in the sex education program. Where that is the case, it increases the opportunity to generate discussion and do small group work. If co-teaching the entire course isn't possible, maybe others can co-teach part of it. The science teacher could help with genetics and heredity, the nurse could help with birth control and prenatal care, or the home economics teacher could help with the needs of newborns and infants. Obviously, this is a small listing of possibilities. Co-teaching implies more than having a guest speaker; it means co-planning, too. If not available as co-teachers, those same staff members would make excellent guest speakers.

Table 3

Selected Commercial Materials

Scriptographic Booklets
Channing L. Bete Company, Inc.
South Deerfield, MA 01373

Inexpensive and short booklets that can be used to guide discussion. Graphics are used and content is written to be of interest to students. The booklets could be used by resource teachers. Below are only a few of the many titles offered.

"As You Grow Up"

A booklet that describes puberty and sexual development of boys and girls. It covers reproductive organs, sexual intercourse, questions and myths about pregnancy, fetal development, and heredity.

"Making Responsible Choices About Sex"

A booklet that discusses responsible choices and sexual behavior. It includes determining if you are ready for sex, evaluating reasons for sexual activity, the option of saying "No", and resource persons a teen can go to for help.

"As Boys Grow Up"

This booklet defines puberty, discusses the physical changes that boys experience, explains male sex organs and introduces the terms "erection", "ejaculation", "wet dreams", "masturbation", and "orgasm", and discusses reproduction. Birth control is introduced. It also addresses social questions of concern to boys and ways to take care of their growing bodies.

James Stanfield Publishing Company
P. O. Box 1983T
Santa Monica, CA 90406

"Sexuality and the Mentally Handicapped"

This is an excellent program developed for mentally retarded adolescents, young adults, and adults. It uses a scripted slide presentation format with a teacher's guide. Slides showing male and female nudity, not graphics, are used. This makes the concepts and scripting more understandable and believable to students. Content covered includes parts of the body, male puberty, female puberty, sexual behavior, human reproduction, birth control, venereal disease, marriage, and parenting.

The explicit nudity shown in the slides makes it critical that the teacher know the content and materials before using the program. Also, it is important that parents and administrators be aware of the explicit nature of the materials before they are used. Communication with parents while the program is being used is recommended.

This program may be too explicit for some schools. However, a review of the program is highly recommended. It provides an excellent model for introducing and discussing abstract concepts that are difficult to teach.

James Stanfield Publishing Company
P. O. Box 1983T
Santa Monica, CA 90406

"Circles I: Intimacy and Relationships"

This is a slide program with audio-tapes and an instructor's manual. It uses the "Circles Concept" to teach students the characteristics of different relationships and behaviors appropriate to each. In the center of the circle are those relationships that are closer to the individual and more intimate. As relationships move from center circle, they are less intimate and acceptable interactions are defined. Part I: Social Distance and Part II: Relationship Building. While designed for students at the moderate and low mild level of mental retardation, this contains important information and good methodology.

"Circles II: Stop Abuse"

This is a slide program with audio-tapes and an instructor's manual. It is a continuation of Circles I. It teaches students to specifically recognize and avoid sexually threatening and abusive situations. Step-by-step protective strategies and behaviors are presented. While designed for students at the moderate and low mild level of mental retardation, this contains important information and good methodology

Hubbard Scientific Company
P. O. Box 104
Northbrook, IL 60065

The materials described below were developed by Biological Sciences Curriculum Study (BSCS) through federal funding. The program was developed specifically for and field-tested with mentally retarded students. Many teachers in Iowa were involved in the field- testing.

"Me Now"

This is a two-year program for students between about age 10 to 13. It is a science program that includes units on Digestion and Circulation; Respiration and Body Wastes; Movement, Support, and Sensory Processes;

and Growth and Development. It uses a multimedia approach and emphasizes active involvement and adjusted vocabulary. An extensive teacher's guide with script is provided.

Unit Four, Growth and Development, provides an excellent foundation in sex education for students at the elementary level. It can be taught independently of other units. Because it was developed for the population, it is sensitive to the learning characteristics and social needs of the students. The unit includes the physical changes of students at different ages, developmental differences between boys and girls and within each sex, male and female body parts, reproduction, fetal development and the birthing process, needs of infants and young children, and how people change as they grow from elementary age through the teens to adulthood and old age. Slides, using colorful graphics, are used to assist in student mastery of concepts.

Hubbard Scientific Company
P. O. Box 104
Northbrook, IL 60065

"Me and My Environment"

This is the junior high extension of the science program developed for mildly handicapped students. It contains five units that can be taught over a three-year period. The units can be taught independently. The units include Exploring My Environment, Me As An Environment, Energy Relationships in My Environment, Transfer and Cycling of Materials in My Environment, and Water and Air in My Environment.

The unit titled "Me As An Environment" has a direct relationship to sex education. The unit examines things that can live in and on our bodies. Entry points for bacteria are reviewed, which include genital openings. Prevention of venereal disease is discussed as part of disease prevention. General body care and cleanliness, as well as the need to maintain a clean environment, are issues incorporated in the unit. Figures 1 and 2 show two pages from a booklet that accompanies this unit.

Project Pride
Sarah Litch
1608 Rackeweg Rd.
Ft. Wayne, IN 46804

"Toward the Prevention of Mental Retardation in the Next Generation"

This is resource material that should be available in each of the AEA libraries. Also, it was distributed statewide in 1978 and may still be available in many schools. The program is a sex education program that was designed to provide information important to teens and to communicate at a need level to which they could relate, i.e., the prevention of mental retardation. Much of the material could be used as is, or in a modified form, with special education students. The program is divided into the following units: The Teenager, The Man and Woman, The Man and Woman Planning for a Child, The Pregnant Woman and Father, The Mother in Labor and Delivery and the Father, The Parents and the Newborn, The Parents in Their Role as Dietician, The Parents in Their Role as Doctor, The Parents in Their Role as Household Manager, The Parents in Their Role as Teacher, The Parents in Their Role as Psychologist, and The Parents in Their Role as Lawyer.

This material is designed to be interfaced with existing classes in biology, health, home economics, etc. It could, with organization and planning, be used as a basis for sex education for special classes.

Guest speakers are excellent resources and can perform a great service for the teacher. They can introduce difficult content or, as with sex education, potentially embarrassing subject matter. Since the teacher is a member of the audience, he or she is in a natural role to do a follow-up with students to check for understanding or to develop the themes introduced by the guest speaker. Since the topic (e.g., masturbation, homosexuality, feelings at the time of sexual arousal) has been discussed in class, the ice is broken. It can be easier for the students to discuss the concepts and use the words openly with the teacher because someone else did it first. Table 4 lists possible topics for guest speakers.

Resource persons, usually school-based or AEA personnel, can help to evaluate student learning. Since paper-pencil tests hardly measure the important aspects of sex education, especially for special education students, a more informal and verbal method must be used. Resource persons can be used to meet with students on an individual basis, or in groups of two, to find out what students know. Questions can be provided by the teacher. Students need to be forewarned and a rationale provided. The setting needs to be non-threatening, the students comfortable with the person, and the person comfortable in re-teaching concepts as appropriate. The advantage of this is that the teacher can insure that every student has someone with whom they are comfortable and that student understanding is thoroughly evaluated. This approach can avoid the problem of student embarrassment in discussing content with a teacher of the opposite sex. While the teacher must approve of the person, there is no reason that students could not be involved in choosing the person by whom they would be tested. Student preparation could be done by having the students first meet with the tester(s) on less sensitive aspects of sex education. The approach can be used throughout the course, as well as at the conclusion of the course.

A recently established resource is TeenLine. It is a 24-hour statewide telephone information/referral service available in Iowa. Located in the Spectrum Unit, Methodist Hospital, Des Moines, TeenLine is sponsored by the Iowa Department of Health. The telephone number is 1-800-443-8336. TeenLine is also able to provide information so students can locate appropriate agencies in or near their own community. Some of the topics related to sex education include AIDS, Young Women's Resource Center, family planning agencies, suicide lines, drug and alcohol addiction, and child abuse. Teenline is able to assist in a broader number of topics than those mentioned above (e.g., cancer information, runaway assistance, and eating disorders).

The teacher may choose to teach students about TeenLine. Also, the teacher can call TeenLine as a way to identify resources that serve the local community. School nurses and school social workers tend to be most knowledgeable about toll-free information services. Teachers can contact them to get information on other such services that may be useful.

Table 4

Topics for Resource Persons

1. Methods of Birth Control
2. Effect of Health (Alcohol or Drugs) on Unborn Child
3. Genetics - How Parents Contribute to Their Child
4. Community Resources for the Sexually Abused
5. What Marriage Is Really Like
6. What Being Single Is Really Like
7. Prevention and Control of Sexually Transmitted Diseases
8. Changes in the Mother (Physically and Emotionally) During Pregnancy
9. Medical Care of the Mother and Unborn Child
10. The Birthing Process - Labor, Delivery, First Few Days
11. Needs of a Newborn - Physically, Economically, and Emotionally
12. Needs of a Child During the First Two Years of Life
13. Cost of Having a Child
14. What It Is Like Being a Teenage Mother
15. What It Is Like Being a Teenage Father
16. Parent Behaviors That Threaten the Unborn Child

Pre-Instruction Activities

Pre-instructional activities which prepare both the school and the community are necessary. The last thing a teacher wants is to create a controversy about what is being taught in the classroom. Controversy is nonproductive and energy consuming. Sex education is perhaps one of the few school subjects where controversy is possible. The risk of encountering problems can be reduced through the following types of activities:

1. Verify the appropriateness of the content with others (e.g. professional resources).

2. Have a rationale for what is to be taught.

3. Review the content with the building principal and obtain approval.

4. Use IEP conferences and other parent conferences to prepare parents for the need for sex education information.

5. Include sex education goals and objectives in the IEP. A sample IEP goal and objective is shown in Table 5.

6. Obtain parent approval for student participation. Provide options if parents do not want their students to participate.

7. Offer to review the program with parents. Schedule a parent meeting if it seems useful.

8. Keep parents informed. This can be done daily, weekly, or as new topics are introduced. Table 6 is an example of information sent home to parents in one school program.

9. Encourage parents to call if they have questions.

10. Encourage students to discuss content with parents if they wish. Inform parents that you are encouraging students to do this. Let parents know that it is Okay if students choose not to discuss it with them.

Table 5

Sex Education Goal and Objective Used At
Ruby Van Meter School, Des Monies Public School

Goals and Objectives

WILL PROGRESS TOWARD ACQUIRING FUNCTIONAL SKILLS IN SEX EDUCATION.

1) WILL DEMONSTRATE A GREATER KNOWLEDGE OF AND MORE POSITIVE ATTITUDE TOWARD HIS OWN SEXUALITY THROUGH INCREASED KNOWLEDGE IN THE AREAS OF: NAMING BODY PARTS AND MATURATIONAL CHANGES, APPROPRIATE BEHAVIORS, REPRODUCTION AND BIRTH CONTROL, AND WILL DEMONSTRATE A MORE POSITIVE ATTITUDE TOWARD HIS OWN SEXUALITY AS DOCUMENTED BY PRE-TEST AND POST-TEST. *

(   ) OBJECTIVE MET (   ) PROGRESS MADE (   ) NO PROGRESS

* If no pre-/post-test was developed, the criteria could be altered to either "as measured by class participation" or "as measured by performance on teacher tests." The words "greater" and "more" would need to be removed from the objective.

Table 6

Example of Parent Communication

Ruby Van Meter School
Sex Education Class

DATE ________________

This is an outline of what we plan to discuss in one class period. Topics not completed today will be crossed out. These will be discussed during the next class. If you have any questions or concerns, please call (teacher's name) at Ruby Van Meter School, (telephone number). You may want to save these outlines for discussions with your child. Please encourage him/her to talk with you about class topics.

BIRTH CONTROL

1. Review birth control
2. Ineffective methods of birth control
3. Abortion, adoption, keeping baby

(The wording of the information permits the teacher to have the material prepared prior to each class period. Parents have received orientation to the sex education program and anticipate receiving outline sheets.)

The confidence of parents in the teacher is critical to avoiding controversy. The better the communication prior to the sex education program, the more comfortable parents will be with it. Parents must be assured that the teacher is providing information and letting students form their own values in conjunction with the guidance of the home.

Ideas for the Classroom

Once the decision has been made to teach sex education, the planning, organizing, and sequencing begins. Ultimately, the teacher must translate the desired outcomes for the age level into a series of lessons. What follows are a few ideas that the teacher might use. Naturally, these ideas would need to be adapted to fit the age level and needs of the students being served. The ideas are organized under three categories: student preparation, student involvement, and major concept learning.

Student Preparation

Preparation of students for a sex education program is important. The teacher wants the students to approach the content with the attitude that it is for individuals who are mature, responsible, and ready to handle grown-up information. Students should feel privileged that the teacher feels they are ready to learn about the subject. Some techniques that could be used are described below.

1. Survey the students as a class to see if sex education is something they would like to study during the year. Later on the unit can be introduced as a response to student request.

2. Create a true-false test the students can complete. Questions like:

   a. Males should understand their own bodies and the bodies of females.

   b. Males and females share responsibility for creating children.

   c. Disease can be spread through having sex.

   d. The health of a pregnant woman can affect an unborn child.

   The questions can be read, answered, and then the class can discuss the rationale for the answers. The discussion can lead to a listing of the topics the class would like to study or questions to answer. The teacher can guide the discussion to insure that the desired scope of the program is included in the student listing of topics or questions.

3. The teacher can start the class through a dramatic introduction. He or she might say, "We are going to study one of the most important and private parts of human life. It is only discussed and understood by students when they are responsible and mature. We are going to study how life is created and how we grow up to be men and women. What does created mean?"

4. Student preparation also involves some class rules or agreements. This might include:

   a. We are all here to learn; no one knows everything.

   b. It is O.K. to ask any question.

   c. It is not O.K. to laugh at others.

   d. It is O. K. to use some words that we usually don't use in school.

   e. What is talked about in class is private and should only be discussed in private situations with others.

Preparing students attitudinally for the class is important. By making them feel special because of the grown-up nature of the content and by creating a comfortable environment, the teacher is going to get more student involvement. This is critical if students are going to ask the questions that are of concern to them.

Student Involvement

Actively involving students in each lesson is important. The limited reading level of students means that a great deal of discussion must occur. Also, students must be given the chance to express their own opinions and hear the opinions of others to form personal values. The ideas that follow are designed to make it easier to involve students.

1. The language experience approach is a method of recording information on a transparency or blackboard. The content is created by the class and permits involvement of all students. This is useful because appropriate print material will be limited. It can be typed on dittos and distributed or students can keep notebooks. It is an especially good method for summarizing a class period and contributes to review.

2. Role play is a useful technique. For some students, knowledge will not generalize to behavior without some practice. Students can role play what they would do if they are approached by a stranger, want to ask someone for a date, are put in an uncomfortable sexual situation, and so forth. Role-play cards can be developed and students can draw cards to see what role they play.

3. Speakers can be recommended by students. Prior to a speaker's coming, the students can develop the questions that will be asked. These questions can be assigned to students to ask speaker. This may make it easier for the students to look for the important information to be shared by the speaker.

4. Student committees can be formed to discuss such things as the rights of unborn children, the responsibility of pregnant women for the health of the newborn, or the disadvantages of being a teenage parent. The teacher will need to provide assistance. However, the approach will help students to form their own opinions.

5. Students can make lists or collages of things they would have to buy if they were parents--including the costs. They can also make lists or collages of things they would like to have, but would not be able to afford.

6. The class can construct a story, using an experience approach, of how the lives of two teenagers were changed as a result of becoming parents.

7. Students can practice what they would say under high stress situations. These situations might include the sexual advances of a stranger or wanting to tell their current romance that they are not ready for sexual relations.

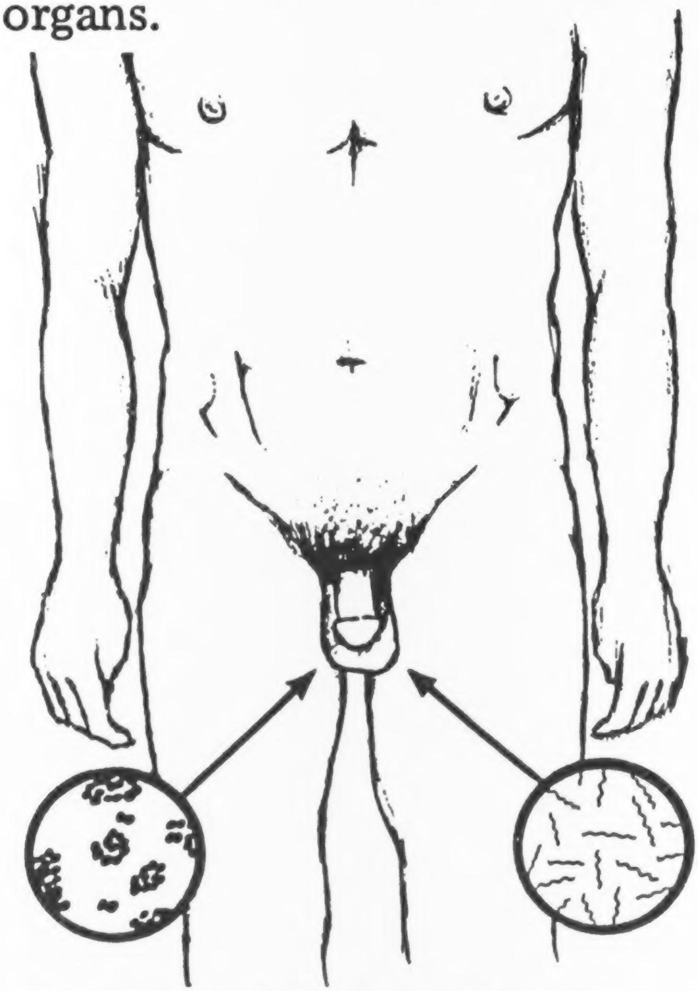
8. The class can visit such places as doctors' offices, family planning clinics, or hospitals to discuss a variety of possible topics.

9. Materials that are visual and easy for students to understand can be developed or selected. Figures 1 and 2 show two pages from What You Should Know About VD, a booklet that accompanies the "Me and My Environment" program described in Table 3.

Figure 1

Example of Materials that Promote Student Understanding

The microbes usually come into the body through the sex organs.



The microbes usually enter a male through his penis.

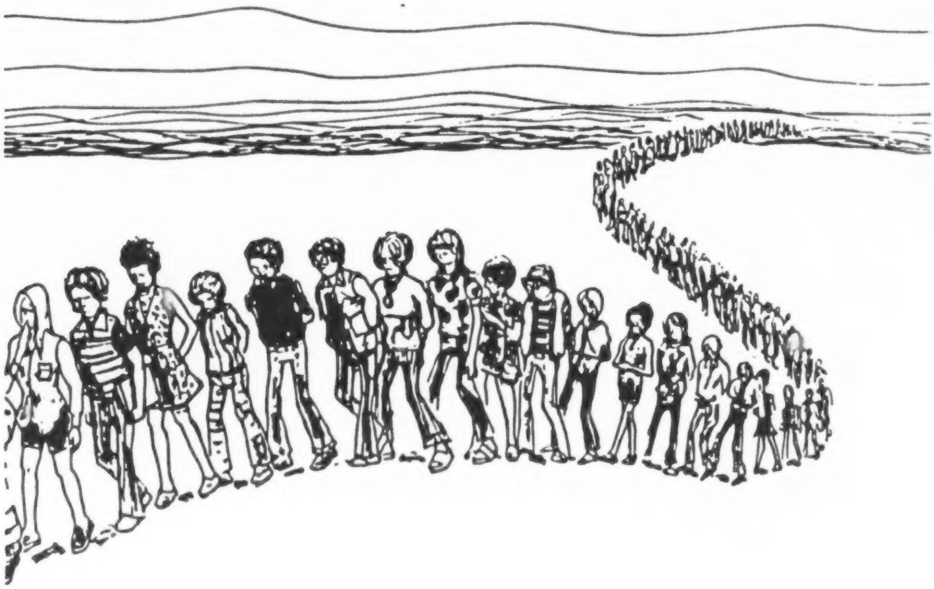
What You Should Know About VD, Hubbard, Northbrook, Illinois 60062, p. 18

Figure 2

Example of Materials that Promote Student Understanding

This year more than one million (1,000,000) Americans will report getting gonorrhea.

More than 95,000 Americans will report getting syphilis.



About 500,000 teen-agers will get VD this year!

What You Should Know About VD, Hubbard, Northbrook, Illinois 60062, p. 24

10. Games can be created to provide practice on factual information. For example, using game cards, students can be asked to define terms such as masturbation, intercourse, or birth control. Students can also be asked to name three things that would be harmful to the unborn child, responsibilities of adults before they decide to become parents, or community resources available. A game format permits involving students at a variety of cognitive levels.

11. Calendar activities can be used to calculate time between menstrual periods or from conception to birth. Such activities work better if every student can have his or her own calendar to use.

Major Concept Learning

The teacher must identify the major concepts that are important to the age group. These should be translated into statements the students can understand and there should be agreement that they are true. These can be learned through usual rehearsal strategies. Examples of these concepts include:

1. Everyone's body is private property.

2. There is public and private behavior.

3. No one has the right to force anyone sexually.

4. Children may not be used sexually.

5. It is O.K. to say "No" to sex.

6. No one should produce children he or she doesn't want.

Another major concept focuses on the real-life nature and needs of babies. The messages communicated about babies tend to be lopsided. Babies are shown as cute bundles to be loved and to return love. People who have babies are admired by others and, idealistically, having a baby causes a female-male relationship to become stronger. The adults around students, especially teachers, help to perpetuate this one-sided picture of parenthood. When students see adults about to become mothers or fathers, they only see the glow of prospective parenthood. They do not see all the factors that have created a readiness for the responsibility.

Students with mental disabilities should not be allowed to develop a "babies are beautiful" attitude without also understanding the economic, physical, and emotional realities of parenthood. Resource persons and films are helpful in balancing the information received by students. If resource persons are used, they will need some orientation on the importance of discussing the disadvantages of pregnancy and parenthood, as well as the advantages. The physical changes in the woman, the fatigue and restrictiveness of caring for a child, and the personal sacrifices because of medical and other costs should be brought out. This may have to be exaggerated because the resource persons most available will not be young adults or adults with mental disabilities. The conclusion should not be, "Regardless, it was all worth it." Instead, the conclusion should be that there are many sacrifices and responsibilities that go with being a parent and, "Every person must decide if he or she is ready for parenthood before producing a child."

Identification of major concepts is an essential aspect of the teaching process. Facts and technical information are lost over time. The major concepts are those that will last if instruction is directed toward them in the sex education program. Unless they are identified, they cannot be taught.

Alternate Lifestyles

In our society, everyone does not fall in love, get married, and have children. Today, men and women have decided to delay marriage longer than in any other time period. Also, all people who get married do not have children. Some people elect to stay single and live with their families, with roommates, or by themselves.

It is fortunate for students with mental disabilities that this variation in adult patterns is now more visible and more acceptable. Not all students will be getting married. Some students may live in group homes or supervised apartments, often with little opportunity for sexual activity. Some students will not be mature enough or attractive enough to date while in high school. Some students will find that the realities of their income prohibit moving away from home and being totally independent. While this may not be the social freedom we would wish for our students, it is the situation that exists.

Sex education instruction should reflect the variations that do exist in adult lifestyles. By openly discussing the variations, the student who does not date, by choice or lack of opportunity, can be prevented from evaluating himself or herself negatively. Such discussion can also create a broader range of acceptable alternatives for students as they enter adulthood. Students should not be restricted to a single viewpoint of adult male or female lifestyle. This expanded view of what is normal will better enable students to make choices or respond to their circumstances without a feeling of being inadequate as a male or female. Individuals who are not married, live with parents, or live alone make good guest speakers.

The Resource Teaching Program and Sex Education

The resource teacher will rarely, if ever, be able to design and implement a sex education program. The purposes of a resource program and student scheduling are major barriers to sex education for resource students. Consequently, the resource teacher must take other measures to insure that students receive sex education.

The major strategy that a resource teacher can use is to see what opportunities for sex education exist in the general education program. The teacher can see that the student is scheduled into those classes as appropriate. Support to the regular teacher and student can be provided as in any course. For many resource students, this may meet their needs.

Some resource students will need more than what is provided in the general education program. In those situations, the teacher can turn to others for assistance. The school nurse, counselor, health educator, or school social worker might be someone that can help provide basic information to a student. Naturally, this should be discussed with those persons prior to initiating any such program. The goal is not only to see that information is provided, but also to establish a linkage between the student and the other person. The linkage is important to insure that the student has someone to ask for guidance or additional information over time.

Resource teachers are discouraged from becoming the primary source for students who need sex education information. Not only are there persons who are better prepared, but also the resource teacher has a very personal, established relationship with the student that may not be compatible with the directness and subject matter of sex education. The teacher should also be able to use these other resources in working with parents. The resource teacher may not be accepted as a sex educator readily by some parents, whereas the other professionals may be granted more credibility because of their positions in the school.

Reporting of Possible Sex Abuse of Students

Under Iowa law, teachers are mandatory reporters of child abuse. That is, teachers must report to the Child Protective Investigative Unit, Department of Human Services, suspected child abuse, and sexual abuse is one of the types of child abuse. Emphasis must be placed on the word "suspected". The teacher is not responsible for establishing that abuse has or has not occurred. Instead, the teacher is responsible for reporting if there appears to be reasonable information to cause abuse to be suspected.

It is possible that during a sex education course a student may say something to cause the teacher to believe that sexual abuse may have occurred or is occurring. This will most often come up when social taboos about sexual behavior or the right to privacy is discussed. Sometimes students will tell teachers in confidence that something has happened to them. If there is reason to believe that sexual abuse has taken place, the teacher must file a report of possible child abuse in those cases. It is the law. The school nurse and school social worker are useful resources for reviewing the procedures for reporting suspected child abuse.

SUMMARY

Students with mental disabilities have the same need for sex education as nonhandicapped students of comparable chronological age. For many reasons, the ability of those students to acquire information without formal instruction is limited. Unfortunately, there is little evidence to show that much attention has been given to including well-defined sex education in the curriculum. A major reason for this is the lack of preparation of teachers to plan and teach sex education. Because of public concern about sexually transmitted diseases, there is now an expectation that sex education be provided in the schools.

The chapter provides information that is useful to teachers wishing to implement a sex education program for students with mental disabilities. Included is information on the scope and purposes of sex education. A major emphasis is the importance of preparing students to make responsible decisions and to define for themselves acceptable values. To assist the teacher, resources for obtaining information about sex education, materials developed for the population, and instructional suggestions are offered. Ways to keep sex education from becoming controversial, along with techniques for communicating with parents, are given.

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Sol Gordon is recognized as a leader in the field of sex education. He has written widely about sex education for disabled and nondisabled students. The above article is one of eight in a special issue on sex education. Information contained in this issue of the journal is still relevant to persons interested in sex education for disabled students.

Kempton, W. (1975). A teacher's guide to sex education for persons with learning disabilities. Belmont, CA: Wadsworth Publishing Company, Inc.

This is an excellent resource book for the teacher. All major topics related to sex education are covered. The book uses examples from the field of mental retardation and seems to be written for educable mentally retarded students. "Learning disabilities" is used in a generic fashion to refer to students with learning problems.

Chapter Eighteen

Instructional Interventions To Improve Social Competence

Laurence R. Sargent

OVERVIEW

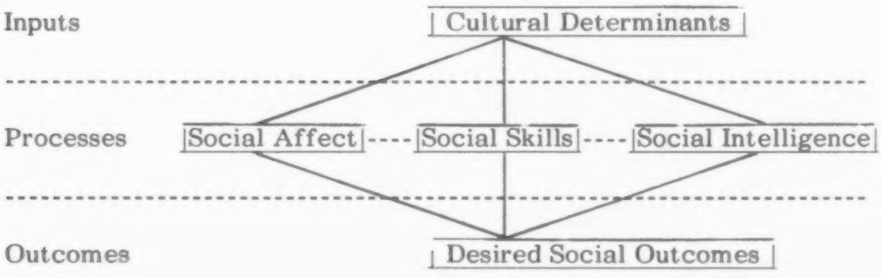
For most children and adolescents, social competence develops through incidental learning and intellectual maturation. Unfortunately, children with disabilities, and especially children with mental disabilities, are notoriously inadequate in their incidental learning and have significant delays in intellectual growth. They commonly exhibit learning deficits in areas of discrimination, attention, memory, and generalization (Ellis, 1963; Fisher & Zeaman, 1973; Zeaman & House, 1963) which contribute to impairment of social affect, social skills, and social cognition. Consequently, individuals with mental disabilities frequently fail to accrue acceptance by peers and adults. Moreover, many children with disabilities tend to incur social rejection as the result of exhibiting interfering and socially repugnant behaviors.

There are many long term consequences of social rejection and poor social competence. Early studies indicate that individuals identified during childhood as social isolates were likely to have difficulty (e.g., with the law, alcohol, divorce) during adulthood (Gresham, 1981). Further, rehabilitation literature indicates that most individuals with mild and moderate mental disabilities who lose jobs do so primarily for lack of adequate social skills and other socially inappropriate behavior. Due to the great importance and lasting effect, programming provided for individuals with mental retardation must include efforts to build social competence.

Conceptual Framework of Social Competence

Understanding the notion of social competence is critical for professionals choosing to address the needs of learners with mental disabilities. Social competence consists of a huge mix of interacting and overlapping variables. To make sense of these variables, a conceptual framework is necessary for purposes of determining how to address social competence problems. The following mechanistic model consisting of inputs, processes and desired outcomes is presented for purposes of formulating actions that will enhance the social competence of learners with disabilities.

SOCIAL COMPETENCE



To explain this overly simplified framework, the model will be turned upside down and the outcome component will be discussed first. The outcomes represent the needs and desires of the individual with a disability; plus, they reflect the aspirations of parents, professionals, and care providers to see that the individual becomes a productive and happy adult. It is hoped that the individual student or client will attain the following:

1. Self-esteem
2. Self-confidence
3. Peer acceptance
4. Acceptance by family and significant others
5. Friendships
6. Strong personal relationships
7. Community acceptance
8. Acceptance in the work place
9. Social independence
10. A supportive social milieu

These outcomes are attained through the interaction of life experiences and the efforts of professionals acting on the lives of individuals with mental retardation. The interventions must occur during the person's entire developmental period.

With these targets for intervention identified, the model will be turned upright and cultural determinants of social competence will be identified. In this mechanistic model, the input component consists of cultural determinants which are values and social standards by which individuals live. These are the dynamic raw materials of social competence which vary according to community size, ethnic mix, region of the country and traditions of the community. Failure to function within these cultural boundaries will often deter both social acceptance and the development of feelings of self-efficacy. For the purposes of this model, some of the major cultural determinant categories are as follows:

1. Community values
2. Standards for adult/child relations
3. Family member role expectations
4. Privacy standards
5. Standards of decency (e.g taboos, etc.)
6. Work ethic

7. Standards of fairness

8. Independence expectancy

9. Temporal standards (e.g. how long to chit chat, and how late is acceptable)

10. Standards of social responsibility

11. Community tolerance of differences

12. Aesthetic conventions and values

13. Situational conventions:

    a. Table manners
    b. Church manners
    c. Theater manners
    d. Public courtesies
    e. Classroom manners
    f. Work place conventions

14. Many others

Cultural determinants are the ingredients of social competence which must be acted upon to arrive at the desired outcomes. The actions occur through the three process elements of the model where the individual adjusts and matches his or her behavior to this myriad of values and rules.

The three process components of this framework include social affect, social skills, and social intelligence. Each component warrants attention and failure to address all areas results in a partial attempt to achieve the desired outcomes.

Social affect is an overt process component of social competence. As used in this framework, social affect relates to how the individual appears to others. Social acceptance is more easily attained by individuals with desirable social affect consisting of the following:

1. Cheerfulness

2. Enthusiasm

3. Confidence

4. Optimism

5. Risk taking

6. Independence

7. Good posture

8. Good Grooming

9. Sense of humor

10. Affection

11. Assertiveness

There are teaching materials and methods specifically designed to improve student affect, but it appears that attention to the affective dimension can be addressed in all activities and instruction. However, attention to affect alone will not create a more socially competent individual.

Social skills and behaviors are other overt aspects of social competence. These behaviors can be taught directly, taught through infusion into life experiences, and can be acquired incidentally by imitating competent peers and adults. Many social skills and behaviors fall into the following categories:

1. Interaction initiatives (e.g., starting a conversation)

2. Interaction responses (e.g., responding to a complaint)

3. Personal social behaviors (e.g., dealing with embarrassment)

4. Setting specific skills and behaviors:

    a. School Behavior
    b. Work place behavior
    c. Public setting behavior
    d. Family setting behavior

Direct instruction of overt aspects of social competence holds great promise, but the overt aspects are insufficient if they are the only elements of social competence that an instructional team deals with. Techniques used to teach social skills must be combined with those developed to enhance social intelligence.

The third process component, social cognition, is by definition one of the most difficult areas encountered by a person identified as having mental retardation. Social cognition represents an individual's ability to understand, interpret, and take appropriate actions relevant to different social settings, personal interactions and complexity of situations (Greenspan, 1979). Among nonhandicapped students, many of these abilities are acquired developmentally. Categories of social cognition partially adapted from Greenspan (1979) include:

1. Role taking/empathy

2. Social discrimination and inference

3. Social understanding/comprehension

4. Understanding motives of others

5. Moral and ethical judgments

6. Referential communication

7. Social problem solving

Despite the inherent difficulty in this area of personal growth, individuals with mental retardation can progress as the result of intervention. Strategies for social problem solving may be taught, experiences may arranged to enhance social discrimination, moral and ethical judgments may be reinforced, and opportunities may be provided to practice social problem solving.

Over the years, professionals have attempted to deal with social development of individuals with disabilities by experimenting with a variety of interventions. The following literature review represents a history of attempts to improve the social functioning of individuals with disabilities.

History of Social Competence Training

During special education's early years, lack of social competence was acknowledged as a factor in the development of children with mental disabilities, but there were few instances where social skill training was addressed in a structured format. During the 1950's leading authorities on teaching children with mild mental retardation suggested that social competence was most affected by the school experiences. They hypothesized that social skill development occurred at a slower rate but was no different in substance from the social skill development of nonchildren with disabilities. Further, they asserted that the negative attitudes and poor social behaviors exhibited by youngsters with disabilities occurred as a result of frustration and failure experienced in regular education classrooms. The remedy proposed by these authorities was to separate youngsters with disabilities into special classes and provide them with more concrete learning experiences and less frustrating academic tasks. They suggested the major impact on social development would occur when teachers created non-threatening classroom environments. In turn, the less threatening academic atmosphere would ensure success experiences resulting in enhanced self-concept and decreases in showing off, teasing and stealing other children's things that were believed to be part of the youngsters' with mild mental retardation behavioral repertoires (Johnson, 1963; Kirk & Johnson, 1951).

During the 1960's educators began questioning some of these traditional views of programming. Safe environments were criticized to some extent for not challenging youngsters with disabilitics (Kolstoe and Frey, 1965). One of the preponderant methods for teaching social skills, or for that matter all subjects, was the use of life experience units. In essence, the teaching of social skills was blended into all aspects of instruction. For example, a unit on teen dating would include instruction related to etiquette, cost, transportation, vocabulary and a number of other aspects related to dating (Meyen, 1972). According to Kolstoe (1970), units of experience lent themselves to both teaching social competency and providing practice in the implementation of the concepts in social situations. Further, Kolstoe recommended that social drama be used in response to specific questions which might occur in the home, school or neighborhood and that it not be "systematically contrived to fit a list of ethical or moral concepts" (p. 113).

One major exception to the void in development of training programs in the social and emotional areas was the Social Learning Curriculum (Goldstein, 1974) developed at the Curriculum Research and Development Center in Mental Retardation at Yeshiva University. This special curriculum addressed social interaction skills and provided information to pupils related to their community and everyday living environment.

Since the development of that curriculum, special education service delivery models changed focus and attempted to program for students with disabilities for the least restrictive environment. When reasonable and appropriate, the preferred placement of pupils with disabilities, according to state and federal law, became the regular classroom. In part, these students were expected to show social skill growth simply as a result of integration (Dunn, 1968). Mainstreaming advocates premised their support upon assumptions that increases in social interaction, social acceptance and modeling would occur (Birch, 1974; Christophos & Renz, 1969; Mercer & Algozzine, 1977). Unfortunately, as will be discussed in the following section, not all children with mental disabilities benefited from their integration into regular classrooms.

The Need for Improving Social Competence

A significant reason for addressing social competence is that modern educational practices are focused on providing instruction in the least restrictive environment. With educational efforts directed toward preparing individuals with mild and moderate mental disabilities to live in their own communities with nonhandicapped people, social competence becomes essential for success in these mainstream school, community and work settings. The second reason for addressing social competence is an awareness that structured learning activities are educationally more fruitful than previous instructional techniques which relied on skill acquisition through tangentially related activities (Lloyd & Carnine, 1981). This leads to the conclusion that programming for social competence should not be left to chance if it is to be done effectively.

In contrast to the expectations of mainstreaming proponents, Gresham (1982) asserts that children with disabilities do not interact more, are not better accepted, and do not model the desired social skills of their peers when physically integrated with them. This assertion is supported by considerable research conducted with children identified as mentally retarded (Apolloni & Cooke, 1978; Ballard, Coreman, Gottlieb & Kaufman, 1977; Gottlieb, 1974; Gottlieb, 1975; Gottlieb, Semmel & Veldman, 1978; Jenkins, Speltz, & Odom, 1986; Van Bourgondien, 1987). Instead of urging abandonment of mainstreaming, Gresham (1982, 1984) makes a case for teaching social skills to pupils with disabilities for the purpose of enhancing their ability to benefit from integration.

In contrast to Kolstoe's (1970) admonition that social skill training through the use of social drama should not be systematically contrived, the methodology for teaching other skills appears to be more effective when instruction is very structured. After reviewing research on academic instruction, Stevens and Rosenshine (1981) concluded that the most successful teachers are those that selected and directed activities, approached the subject matter in a direct fashion, organized learning around questions they posed, and occupied the center of attention. Further, they concluded that the most efficient process for teaching occurs in a three step sequence including: demonstration, prompting and practice.

During the practice phase student must experience a high level of success to sustain learning gains, and learning will be enhanced when pupils receive feedback on their efforts.

Similarly, researchers found that students with mild mental disabilities often learn best when instruction is offered in a systematic sequenced format. Close, Irvin, Taylor and Agosta (1981) indicated that instructional assistance (consisting of verbal cues, modeling and prompting), systematic feedback, and repeated correct practice ensures learning. They used a variation of direct instruction technology to teach community living skills to adults with mild mental disabilities.' Based on the effectiveness of learning formats, similar approaches appear to be needed to teach social skills to pupils with mild mental retardation.

What to Teach

One of the major determinants of social acceptance appears to be the perception of interfering behavior by others. Greater social rejection occurs for misbehaving children than for children with disabilities who are simply perceived as cognitively deficient (Gottlieb, Semmel & Veldman, 1978; MacMillan & Morrison, 1980). Similarly, children who are learning disabled tend to be rejected by peers and were found to emit negative verbal behaviors in the regular classroom (Bryan, 1974). Some of the behaviors found most important to gaining social acceptance in the regular classroom are: attending, complying, volunteering, following directions, speaking positively about academic material, and remaining on task (Cartledge & Milburn, 1980). Gottlieb (1982) indicated that for young children, teacher acceptance appeared to be a major determinant in social acceptance by peers. In addition to facilitating acceptance among peers, these behaviors encourage greater acceptance on the part of the regular class teachers and result in the child with a disability having more positive interactions with teachers. Therefore, learning teacher pleasing behaviors is an important part of developing social competence. For young children, a good place to start would be with one of several lists of kindergarten survival skills (McCormick & Kawate, 1982). Other behaviors, such as, aggression and acting out must be reduced through use of behavior change methods.

Personal interaction skills are equally important to ensure success in the school and community setting. Several authors identify behavior such as: helping, sharing, smiling, greeting others, speaking positively to others, and controlling aggression as behaviors which are necessary for adequate social interaction. In addition, recognizing emotions, complimenting, positive physical contract, asking for information, extending invitations, giving information, taking turns, listening, eye contact, participating, expressing enthusiasm, and good grooming were all found to contribute to positive social interaction (Cooke & Appolloni, 1976; Gottman, Gonso & Rasmussen, 1975; Gronlund & Anderson, 1963; Mesibov & LaGreca, 1981; and Oden & Asher, 1977).

For elementary children, Stephens' (1978) developed a list of 136 social skills. He divided these skills into environmental behaviors, interpersonal behaviors, self-related behaviors and task related behaviors. These skills were identified by having 200 teachers rate skills which are most necessary to succeed in the regular classroom. Stephens' lists of social skills extend beyond Gresham's (1981) definition which addressed only social interaction and social acceptance and include eating properly, disposing of trash, traveling to and about the school, and personal hygiene.

In addition to the list of social skills, Stephens developed a curriculum based on direct instruction strategies for teaching all of these skills.

At the secondary school level, Goldstein, Sprafkin, Gershaw, and Klein (1980) produced a list of social skills and structured learning activities meant for use with adolescents with behavioral disorders. Goldstein and his associates documented considerable success with their structured learning approaches they called "Skillstreaming." They grouped skills according to a hierarchy: (1) beginning social skills such as complimenting, (2) advanced social skills (e.g., asking for help and apologizing), (3) dealing with feelings, (e.g., expressing affection), (4) alternatives to aggression (e.g., negotiating), (5) dealing with stress (e.g., being left out), and (6) planning skills (e.g., making a decision). McGinnis and Goldstein (1984) later adapted the original Skillstreaming model for use with elementary age students.

Another perspective on what to teach relates to the assumption that the area of social cognition must be addressed if the individual is to become socially competent. individuals with mental disabilities have been identified as more egocentric and therefore require more training in role taking--understanding what others are perceiving, thinking, and feeling. In addition, they are deficient at social inference (i.e., the ability to interpret what is happening around them), decision making, and problem solving. Furthermore, shortcomings in the understanding of social processes like friendship are frequent (Greenspan, 1979).

Elias and Maher (1983) suggest a social-cognitive problem solving skills framework upon which school based programming can be conducted. It is their contention that a specific set of skills make up social skill competence. The skills which they list are:

1. an expectation by individuals that they can take personal initiative in a situation and gain a favorable outcome,
2. a sensitivity to others' feelings and perspectives,
3. the ability to set a clear goal and consider various possible consequences,
4. the ability to plan specific steps to aid in reaching a goal,
5. the behavioral repertoire needed to implement their plans,
6. the persistence to continue using their problem solving skills in the face of obstacles, and
7. the ability to refine their problem-solving strategies in light of experience.

Vaughn, Ridley, and Cox (1983) identified several skills which fit into the social cognition category and they designed an instructional program around them. The content of their instructional program includes:

1. Fundamental language concepts (e.g. same, different, etc.)
2. Cue Sensitivity--Children are taught to become aware of key factors in a social situation and react differently depending on the situation.

3. Goal Identification--Children are taught to proceed from goals producing long range gratification.

4. Empathy--Children are taught to take the role of another.

5. Alternative Thinking--Students are taught to predict likely outcomes for problem situations using alternative problem solving strategies.

6. Consequential Thinking--strategies for predicting likely outcomes of problem solving methods are taught.

7. Procedural Thinking--Students are taught how to get from a chosen alternative to a desired goal.

8. Integrating skills--All of the components of the interpersonal problem solving approach are incorporated into a single process.

Although there are many skills and behaviors which must be taught to increase the social competence of individuals with mental disabilities, the timing of instruction is also important.

When to Teach

In some form or another, social competence must be taught at all times in a child's life. In particular, reinforcement of social affect and socially appropriate behavior will always be warranted. However, not every social competency must be addressed as soon as it is perceived as a deficiency. Decisions on when to teach a particular skill are related to the characteristics of individual children. Browning and White (1986) emphasized that instruction should match the ages of the children and their cognitive abilities. For example, a child with a mental age of four is not likely to have a well developed concept of what is "fair" and what is "not fair." If the child is still young, he or she may develop these concepts with little intervention. In contrast, some students have so many deficits that it is necessary to tackle the most obtrusive problem or potentially most valuable skill first. In other words, a system of priorities must be established for the individual.

Many students classified as mentally disabled are by definition deficient in their social competence. In these cases it is appropriate to address social skill training systematically. Preshcoolers may be taught kindergarten survival skills, elementary age children may be taught teacher pleasing behaviors, and adolescents have great need for assistance with personal interaction skills. In addition to direct teaching, most students with mental disabilities benefit from adult interventions to facilitate interactions with peers. This is a continuous and longitudinal need.

Assessment is often the first part of a systematic approach to teaching social skills. The most time efficient assessment is the use of teacher rated checklists which accompany many social skills training materials (Goldstein, et. al., 1980; Sargent, 1983; Stephens, 1978). By rating student behavior, teachers can identify specific social skill deficits. Four types of deficits are most prominent.

1. Skill Deficits--The student cannot perform a particular social skill.

2. Skill Inadequacy--The skill is performed but some critical steps are left out.

3. Performance Deficit--The student can perform the skill, but does not do it frequently enough.

4. Self-control Deficit--The student has excessive or repugnant behaviors which he or she seems unable to reduce in frequency.

Deficits 1 and 2 require instruction, while deficits 3 and 4 require individual behavior change plans.

Determining when to teach a particular skill can be accomplished by responding to the following questions:

1. Is the skill deficient or inadequate?

2. Does the student have the cognitive ability to learn the skill?

3. Will the student have an opportunity to practice the skill?

4. Does changing the student's behavior have importance to significant others in the student's life?

5. Is the skill needed in current or future environments?

6. Is acquisition of the skill essential to the individual's ability to remain in his or her current environment?

Affirmative answers to these questions may lead to the conclusion that the skill should be taught immediately. If an answer is negative to any of questions 2--5, the skill may be taught at a later date. If the response to question 6 is affirmative, the skill may be taught, but the behavior may have to be shaped through use of behavioral analysis techniques rather than being taught through more cognitive-based instruction. Methods for teaching social skills are discussed in the following section.

How to Teach!

No single approach to building social competence appears to be totally satisfactory. The approaches selected for use will depend on a wide range of variables including age, mental ability, practice opportunities, communication skills, and a host of concerns related to the unique needs of individuals. Further, improving social competence must be planned longitudinally. Attention to these needs must be given throughout a student's entire school career. It is unlikely that a lesson or two on how to make friends will result in the individual establishing close personal relationships. The individual must have sufficient self-esteem, confidence and risk taking ability to make friends. At the same time, they must have the following: the ability to understand how their close friend feels and thinks, the moral and ethical judgments to be respected by a friend, and the ability to solve social problems that assist in sustaining friendships. To state this more broadly, the individual must manifest sufficient social affect, display appropriate social skills, and exercise social cognition to become socially competent.

Improving Social Affect

As mentioned earlier, it was once believed that if we simply dealt with the self-concept of children with mild mental disabilities by removing them from the frustrations of regular education then socially maladaptive behaviors would disappear. Not all, but several studies indicate that students in special classes do tend to have somewhat better self-concepts than similarly students with disabilities in regular education classes. However, this does not mean that they have better social skills or that they are better liked by others. It only means that they think better of themselves.

With the current mandate to educate children in the least restrictive environment, it is very important to work on social affect in a variety of ways. Because affect is part of all social behavior, this aspect of social competence is best taught when integrated into all instructional areas as well as being taught directly. Building a healthy social affect should begin as soon as a child enters school. Attempts to shape affective behaviors such as cheerfulness, good posture, good grooming, independence, and optimism should be ongoing throughout the student's school career. Regular and special education teachers can positively impact social affect in a variety of ways including (a) providing instruction and activities in which the individual with a disability can be successful; (b) reinforcing smiling, making eye contact, and expressing enthusiasm; and, (c) providing appropriate opportunities to demonstrate assertiveness. Furthermore, clear, simple, informative feedback on behavior such as posture and grooming will assist in developing an affect which contributes to social acceptance.

In many cases, efforts to build social affect will be beyond the scope of what the special education teacher can do alone. Success has been achieved through the use of peer confederates reinforcing and prompting interactions (Strain & Odom, 1986), adult confederates (Sargent, 1983), and classmates (McGinnis & Goldstein, 1984). Strain and Timm (1974) were able to increase cooperative play of handicapped and nonhandicapped peers by reinforcing the nonchildren with disabilities for initiating interactions and cooperative play.

Simply integrating students into regular classes is unlikely to improve social affect and social skills (Gresham, 1982; Jenkins, Speltz, & Odom, 1986; Johnson, Johnson, & Maruyamma, 1983). However, planned interventions can facilitate interaction and improved self-concept. A procedure which works well in regular class settings is cooperative learning where students engage in cooperative goal setting. The use of this procedure with students with mental disabilities has shown that students with disabilities engaged in twice as much interaction in cooperative learning environments as they do in competitive learning situations. Moreover, their self-esteem was better, and the new relationships were maintained during periods of free play (Johnson & Johnson, 1983). To date, no other attempts to improve social affect have proven to be as powerful as cooperative learning strategies. Another benefit of this approach is that nonhandicapped students are more accepting of their peers with disabilities (Ballard, et. al., 1977).

A few instructional techniques of a more directive nature have been used to improve social affect. In most instances these techniques are combined with attempts to deal with social cognition. A variety of materials were published in the late 1960s and early 1970s to teach children to understand feelings and be optimistic. Typically, these materials contained stories and were followed by group discussions. There are no published studies of their use with children with mental disabilities. Recently, Browning and White (1986) used interactive video media to deal with affective concerns including "being positive" and "being responsible." This methodology of teaching social affect through presentation of a story or film followed by discussion directly resembles instruction in other areas as well.

Developing Social Cognition

Social cognition and social affect are so closely linked that most authors do not separate the two. Much of what the professional literature describes as affective instruction will be identified as social cognition in this chapter. Work in the area of social cognition has been worthwhile, but some research indicates that it must be accompanied with specific skill instruction to be successful and have long term benefits for individuals with mental disabilities (Castles & Glass, 1986). Although not as powerful as social skills training, instruction in the arena of social cognition addresses some important elements of social competence untouched by most specific skill training approaches. An additional positive attribute of training in social cognition is that students are given strategies for dealing with a wide range of problems and conditions. In contrast, specific skill training tends to focus on narrowly defined operations. The majority of the research has been conducted in areas such as role taking ability and social problem solving.

The Social Learning Curriculum (Goldstein, 1974) represents one of the earlier attempts to address the area of social cognition. Lessons were focused on discussion of social problems and alternative ways to solve them. The methodology for teaching skills such as social problem solving included the story followed by discussion format. More recently, Elias & Maher (1983) developed a model for teaching social-cognitive problem solving skills. To teach these skills, they used television video tapes, discussion and role playing. They further point out that knowledge of children's cognitive ability at different ages is very important. According to the authors, use of video tape and film is especially valuable for the following reasons:

1. TV activates a range of sensory modalities. It also stimulates motivation, attention, and is easily recalled.

2. There is a synergistic learning effect when television is combined with discussion that promotes learning of a general cognitive strategy.

Some of the materials that they recommend are video tape materials that can be obtained from:

Catalogue of Television And Audiovisual Materials
Agency for Instructional Television
Bloomington, Indiana

Examples of age-appropriate materials include "You and Your Feelings" for second graders and "But They Might Laugh" for coping with embarrassment (fourth grade). Materials such as these have worked well with a variety of children, but they have not been validated specifically for children with mental disabilities . Nevertheless, their usage with this group seems warranted.

Vaughn, Ridley, and Cox (1983) have validated problem solving training procedures for children and preschoolers with mental disabilities. Their procedures included discussions, modeling, and rehearsal. Through these processes, students demonstrated significant gains in interpersonal problem solving compared to controls. Students increased response repetoires to include trading, sharing, getting assistance from others, and waiting.

Another useful approach for enhancing social cognition is the use of techniques of cognitive behavior modification. This is accomplished by teaching response strategies to students which they can apply at appropriate times. The individual uses verbal self-instruction to deal with problem situations. Students are taught to verbalize their thinking during simulated problem solving and decision making sessions. Strategies are rehearsed and then applied when needed. Browning and White (1986) used this procedure in conjunction with videos focused on areas including "being positive," "relating to others," "knowing your rights," and "being responsible." In addition to verbal rehearsal of strategies, they use self-talking, workbooks, homework, role plays, and expansion games. Bash and Campbell (1980) have a similar procedure they call "thinking aloud" where students verbally rehearse their responses and possible alternative solutions to social problems. The difficulty with these procedures is that they are highly reliant on language, a skill which many individuals with mental disabilities are less facile. However, with adequate practice, cognitive behavior modifications have been used successfully with individuals with mental disabilities.

The methodology used to teach social problem solving, role taking, social inference and other areas of social cognition is very similar to techniques used to train specific social skills discussed in the following section.

Teaching Specific Social Skills

Several authors advocate direct instruction of social skills (Cartledge & Milburn, 1980; McGinnis & Goldstein, 1984; Mesibov & LaGreco, 1981; Sargent, 1983; Stephens, 1979; Strain, Shores & Timm, 1977; Strain & Wiegerink, 1976). The procedures used for direct instruction are all very similar. They rely heavily on modeling, role playing, practice, and feedback. The area of social skills differs slightly from social thinking in that social skills are overt behaviors related to specific social needs such as making an introduction, sharing, or staying our of fights. Since the procedures are basically a synthesis of other models with attention given to the learning characteristics of mentally retarded learners, the instructional procedures from Project SISS (Sargent, 1988) will be presented.

When teaching social skills, it is necessary to adapt instruction to match the learning characteristics of individuals who are mentally disabled. Accommodation for deficits in discrimination, attention, memory, and generalization needs to be built into instructional planning. In nearly all previous attempts to teach social skills to learners with mental disabilities, the students failed to generalize the skills learned (Flemming and Flemming, 1982). Generalization is not likely to occur unless strategies which enhance the likelihood of generalization are employed, and without generalization, social skills training has little empirical and social validity.

Procedural Steps for Teaching Social Skills

The Project SISS (Systematic Instruction of Social Skills) Program (Sargent, 1988) is based a six (6) step direct instruction procedure. The methodology is similar to that developed by Goldstein et. al (1980) and Stephens (1978) but includes accommodations designed to address the learning deficits commonly exhibited by mentally handicapped students:

Step #1: Establishing the Need

All direct instruction lessons begin with establishing the need for the skill. Essentially, the teacher creates conditions or provokes thinking which will make students personally aware of the need to acquire and exercise a particular social skill. Lessons may begin with questions, a story or a puppet skit that introduces the needed skill. Through discussion of personal experiences or the introductory story, students identify reasons why a skill is necessary and establish consequences for knowing or not knowing the skill. For the most part, consequences should be elicited from students rather than be provided by the teacher. The purpose of this step is to enhance attention to instruction by making the topic personally meaningful.

Step #2: Identify the Skill Components

After establishing a need for the skill, the teacher should list the skill components determined through task analysis. For intermediate-aged and older students, the steps should be written on poster board or the chalk board. The listing of skill steps provides language mediators for later performance of the skill and it focuses attention on the key elements of the social skill. Once the skill components are listed, a variety of techniques should be used for rehearsal. For young children rote rehearsal should be imposed for part of the instruction and rehearsal should be cued to elicit recall and recitation. Rote rehearsal may consist of unison reading of the skill component listed on the chalk board, repetition of a poem that presents the skill components, writing the skill steps on homework forms, or daily recitation of the components. For older children, a verbal elaboration strategy is more age-appropriate and more successful than rote rehearsal. Verbal elaboration consists of teacher-lead discussions covering each step of the skill. Through discussion, a variety of aspects of the skill steps are repeated, paired with associative information, and made personally relevant to the students. All of these rehearsal procedures address the short-term memory problems of these students.

Step #3: Model the Skill

Both live and symbolic modeling are effective when teaching social skills. Live modeling may consist of a teacher, another adult, or a competent peer acting out how the behavior should be performed. Symbolic modeling serves the same purpose, but uses video tapes, movies, and puppets to demonstrate the skill. Modeling also helps maintain attention to the lesson. When puppets are used with primary level children they become engaged. The older students seem to appreciate seeing their teacher and others they know perform before them.

Due to the poor discrimination skills of youngsters with disabilities, each of the skill components must be identified during the course of modeling the entire skill. This can be done during symbolic modeling by stopping and narrating the scene being played out. For live modeling, the teacher or other competent model can provide a running narrative of what they are thinking and doing. When using this procedure, the teacher is able to demonstrate the cognitive steps associated with the particular social skills.

Modeling the skill more than one time is usually necessary. After a skill has been acquired, the skill should be modeled in different contexts to demonstrate that the skill needs to be generalized to a variety of conditions or settings. For example, the skill for responding appropriately to name calling might be modeled for playground, home, classroom and school bus settings. The person doing the name calling may be an adult, a peer, or a sibling.

Step #4: Role Play of the Skill

During the role playing portion of the lessons, a number of attempts are made to address the learning deficiencies of youngsters with disabilities. Attention to the lesson is facilitated by the active role taking, and the skill components are actively rehearsed during role playing sessions. In addition, attention is enhanced by giving pupils feedback responsibilities. Feedback assignments may be made verbally or through the use of feedback cards. When giving verbal assignments, the teacher simply tells each student to watch for a single specific skill component. The feedback cards do the same as verbal assignment, but may be collected after each role played situation and redistributed to give class members a new skill component to concentrate on while a fellow student performs.

Feedback coming from classmates as well as teacher serves the following purposes:

1. Feedback can enhance the pupils discrimination of specific skill components.

2. Feedback helps to shape the skill to a refined performance level.

3. Feedback serves as a reinforcer and helps maintain the skill once it is acquired.

Generalization deficiencies also are addressed during role playing sessions. By creating a number of simulated conditions, pupils are provided with a variety of circumstances under which the skill should be used. When possible each time a different student role plays the skill it should be for an altered circumstance. For example, if one student role plays negotiating with a supervisor, the next might role play negotiating with a parent and then with a co-worker.

Step #5: Practice

For a new skill to be mastered, maintained, and eventually generalized, that skill must be practiced. Children with disabilities need considerable practice in learning academic skills and the same efforts must be made to teach social skills. Practice may be carried out in a variety of ways. The following list is a compilation of suggested practice activities:

1. Whole skill prompts--A typical prompt to an elementary school pupil would be something like: "Show me how you are supposed to pay attention," and "Tell me how to ask someone to play and then you can go ask someone to play." The nature of the prompts must be changed to fit the particular child.

2. Coaching - Coaching simply means telling the student what to do and then providing feedback.

3. Skill challenges - A skill challenge occurs when a contrived social or classroom situation is created where a pupil must demonstrate use of a particular skill.

4. Homework - The lessons generally call for formal homework at the junior and senior high levels and informal homework for elementary age children.

5. Skill review sessions- These sessions consist of a review of reasons for using the particular skills, the skill components, and modeling by one or two proficient class members.

6. Daily role playing - Through feedback given during and after the role play practice sessions, skills will be shaped to correct performance.

7. Skill of the Week - When a new skill is introduced, it may be emphasized by posting the skill components.

8. Reteaching the lesson - The same lesson may be retaught (usually in an abbreviated form) at a later date.

9. Reteaching at Different Levels - Several of the social skills will need to be retaught as students become older.

Step #6: Generalization

Unless efforts are made to facilitate generalization the instruction provided in the classroom is likely to be for naught. The recommended procedures are often easy to neglect, but teachers should be vigilant in their efforts to program for generalization. Special education teachers must remember that many of their students are under their stimulus control. Social skills that occur in the special class will not always occur in other environments. Some recommended methods include:

1. Prompting skill use in different environments
2. Feedback in different environments
3. Reinforcement in different environments
4. Reteaching in a different setting
5. Reteach or practice with a change in student constellation
6. Instruct and practice the skill with a different trainer

7. Self reporting - Ask students to report on their own use of the skill.

8. Self-monitoring - Students may be asked to monitor their own skill use.

9. Reinforce generalization

10. Train to loose parameters

11. Concentrate training on only good models

In addition to the steps taken directly to facilitate generalization, many actions which enhance generalization can be integrated into all other aspects of instruction.

Performance Deficits and Follow-up

Not all pupils will meet the performance criteria for each of the social skills introduced in the structured learning lessons. In many cases, the lessons should be repeated and followed up with a variety of interventions. In some cases, a skill will be adequately learned, but after instruction, the pupil still will have a performance deficit. Performance deficits exist when a student can perform a particular social skill but does not exercise the skill frequently enough. A number of procedures may be used to improve upon performance and self control deficits. The methods include use of interdependent contingencies, token economies, behavioral contracts, social reinforcement, prompting and cuing procedures, peer instruction, self-monitoring and cognitive behavior modification. These are common special education procedures and will not be discussed in this chapter.

To give students opportunities to practice and maintain their skills it is necessary to follow-up with interventions which will facilitate interactions. Most of these have been mentioned earlier under the section on teaching social affect. They include use of cooperative learning strategies, peer teaching, use of confederates, organization of non-competitive games, social drama, and buddy systems.

Teaching Approach to Maintenance and Generalization

For nondisabled populations, coaching as a teaching method proved to be as effective as modeling (Oden & Asher, 1977). In contrast, La Greca, Stone, and Bell (1983) found that modeling was more successful than coaching alone for teaching social skills to students with mental disabilities. Although slightly weaker as an initial teaching strategy, coaching remains a powerful maintenance and generalization strategy. The Boys Town Schools Social Skills Curriculum and training model (Black, Downs, Bastien, & Brown, 1984) is a coaching approach which contains some very useful components that can be effectively adapted for use with students who have intellectual deficiencies. Based upon the Teaching-Family Model developed by Phillips, Fixsen, Phillips and Wolf (1979), the curriculum and teaching strategies are focused at improving the social behavior of institutionalized, behavior disordered adolescents. As a feedback and reteaching system, the Complete Teaching Interaction component is a structured and very useful tool for facilitating maintenance and generalization of learned social skills. At Boys Town, this procedure is used for initial instruction of a social skill. This technique is recommended as part of follow-up procedures to direct instruction for students with mental disabilities because it appears to be too reliant on verbal instruction to be used as the only approach to teaching social skills.

The Boys Town model is based upon the premise that social skills teaching is most effective when the problem actually arises. For example, when a student fails to accept criticism it is time to teach that skill. To be able to teach the skill, the teacher must be very accurate at observing and describing behavior. Teacher competence in these skills is recommended before implementing the procedures described in this model. Once the behavioral deficiency is identified, the teacher or other educator initiates a ten step teaching interaction consisting of the following steps:

1. Expression of affection which may include smiles, physical contact, use of the students name, or a statement of affection.
2. Initial praise/empathy is a positive statement related to a students accomplishments or a statement of concern about the student's feelings.
3. Describe inappropriate behavior--tell the student exactly what he or she was doing inappropriately.
4. Describe appropriate behavior--this involves describing or demonstrating an alternative behavior.
5. Rationale is provided to the student to point out the benefit or consequences for engaging or not engaging in certain behaviors.
6. Request acknowledgement as a check for understanding. Some steps may need elaboration or repeating if the student does not understand.
7. Practice is required to make sure the student truly understands how to perform the skill.
8. Feedback is provided to the student to reinforce and/or correct performance during the practice component.
9. Consequences are provided to teach students the relationship between their behavior and the results of their behavior.
10. General Praise is offered to end the session positively and reinforce the student for participating in the teaching/learning experience.

This model gives its users a powerful way to react to the specific deficits and instructional needs of students who need help in this area. A final point bears repeating: since it is primarily a coaching approach, it is recommended as a support or follow-up methodology rather than an initial instruction method.

SUMMARY

Enhancing the social competence of individuals with mental disabilities should be considered an ongoing goal of special educators. This goal cannot be accomplished unless needs are addressed broadly and longitudinally. Efforts should be directed at improving the following areas: social affect, social skills, and social thinking.

Social affect represents appearances that the individual presents to others. These behaviors, such as, cheerfulness and good posture, can be taught through infusion into other learning activities. They are reinforced thorough attempts to facilitate interaction and cooperation with others.

Social skills represent overt behaviors used in a variety of social contexts. They include groups of skills related to initiating and responding appropriately in personal interactions and numerous skills related to socially acceptable behavior in a variety of environments. Many of these skills can be taught directly, but instruction must include components that facilitate generalization.

Social cognition represents the thinking or cognitive component of social competence. Some aspects of social cognition can be enhanced through use of techniques such as role playing, training the use of strategies, and cognitive behavior modification.

Research evidence indicates that no single approach to improving social competence is sufficient. Educators must continually reinforce appropriate social affect, teach social skills directly, and instruct individuals on the use of thinking strategies to understand and solve problems in social situations.

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Chapter Nineteen

Social Studies

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OVERVIEW

Preparing students for the social, vocational, and economic demands of adulthood, and for effectively using community services has long been an established goal of special education. With increased instructional, administrative, and parental demands being placed on special educators, curricular decision making takes on critical dimensions, raising two additional questions. Where does one incorporate many of the curricular areas unique to special education such as daily living skills, personal/social skills, occupational guidance and preparation (Brolin & Kokaska, 1979) into the traditional academic disciplines identified by regular education? Secondly, how does one individualize within this framework? Fortunately, there are remedies and resources available to assist in addressing these complex issues.

Some academic areas such as language arts and mathematics lend themselves more readily for adaptation for students with special needs. There are curricular programs available in these areas that stress basic academic skills. It is the belief of the authors that the area of social studies offers a unique opportunity to incorporate and functionally apply many of the basic skills included in other academic disciplines with concepts identified as essential in special special education curricula.

One major dilemma facing many special educators is the reality that many students are pursuing diplomas. As a result, graduation requirements require adherence to regular education objectives and curricular content, often negating the more functional orientation referred to above.

BASIC CONSIDERATIONS

Social studies has been defined and described in many ways. Kenworthy (1977) feels that social studies can be defined with one word: people. People live in specific places--which is geography. They live at a specific time--which is history. They earn a living and exchange goods--which is economics. They live in various groups--which is sociology. They display specific customs and behaviors which is anthropology. They organize themselves or are organized into political units of many kinds--which is the study of government. All of these aspects are important if students are to understand people in an effective social studies program.

Two other terms are sometimes associated with social studies: social education and social learning. These terms are often specifically applied to special education (e.g., Social Learning Curriculum) and stress skill acquisition in functional areas such as: interpersonal behavior, social interaction, and problem-solving, the use of community resources, orientation to the environment, cultural reference points, and other specific information for assimilation into society.

Other perspectives of social studies objectives abound. Hill cited in Kenworthy (1981), stresses geography and history.

> This area of the [social studies] curriculum helps the child understand his social and physical environment. At the same time it has the responsibility of furthering his social development and growth toward good citizenship (p. 6)

Joyce (1972) suggests that social studies address the following three goals:

1. Humanistic Education: The social studies should help the child comprehend his experience and find meaning in life.

2. Citizenship Education: Each child must be prepared to participate effectively in the dynamic life of the society.

3. Intellectual Education: Each person needs to acquire problem-solving tools. The child should learn to ask fruitful questions and function in social situations.

Osborn, Curlin, and Hill (1979) indicate that there are four major goals in social studies:

1. Knowledge: Knowledge about the real world and knowledge about the worthiness of personal and social judgments.

2. Abilities: The development of skills that are required by citizens.

3. Values: Related to the decision-making process--recognition of a personal value system.

4. Social Participation and Citizenship: Provision of direct experiences of opportunities to apply knowledge, skills and values.

The task of all teachers is to discover and develop the abilities of students so that they may comprehend themselves and other human beings better, cope with life more effectively, and contribute to society in their own way. Consequently, the teachers should realize that:

1. Social studies is a basic part of the education of every student.

2. The goal of social studies learning is improved behavior.

3. Knowledge gained should be relevant to the lives of the student now, and in the future.

4. The experiences of the student should be organized to promote the discovery of concepts and generalizations.

5. The social studies teacher should include feelings as well as facts.

6. The formation, change, and improvement of attitudes is even more important than the acquisition of knowledge.

7. Students should be assisted in examining values.

8. Understanding and accepting oneself, with all one's strengths and limitations, is a first step toward accepting others.

9. Students should be assisted in coping with a variety of problems--personal, economic, social, civic, and cultural.

10. Students should learn very early about rules, authority, and responsibilities.

Although not totally consistent across commercial materials, a basic framework of scope and sequence in regular education social studies can be identified, as presented in Table 1. This suggests that a fairly common pattern in social studies has emerged over the years. Students first study about themselves, their homes and their neighborhoods, then about their community and state. Later, they study regions of the United States and our national history.

Table 1

Scope and Sequence of General Education Social Studies

Grade	Concepts
Kindergarten	Self Awareness, Family, School
One	Home, School, Neighborhood
Two	Neighborhood and the Community
Three	Community, Basic Needs, Transportation
Four	Regional Geography or Regions of the World
Five	US Geography and/or History
Six	World Geography--North and South
Seven	World Geography--Europe, Asia, Middle East Africa
Eight	US History
Nine	Civics or Ancient and Medieval History
Ten	Modern History or World History
Eleven	US History
Twelve	Political Science, Economics Sociology

Source: various curriculum guides and outlines
Note: Not all commercially available textbook series delineate scope and sequence in this manner.

BEST PRACTICE

It seems appropriate to suggest that the purposes and goals of regular social studies are appropriate and suitable for most special education students. A natural arena for teaching social studies--the community--provides a setting where basic skills can be applied to increase the students knowledge of the social, economic and political environments in which they will be participating.

However, teaching social studies to students with special needs, while strongly advocated, is not without some significant problems. Polloway, Patton, Payne, and Payne (1989) summarize:

1. The sparcity of information on how to teach this subject to these students (Curtis & Saver, 1980).
2. The difficulty in finding concensus regarding content and methodology (Barr, Barth & Shermis, 1978).
3. The lack of teacher familiarity with social studies, particularly at the secondary level.
4. Basic skill deficiencies common to most special education students (e.g., reading).

It is the intent of this section to address some of these concerns and to provide some useful information that special education teachers can utilize in adapting and designing a meaningful social studies curriculum.

Determining the Appropriateness of the Regular Social Studies Curriculum

The first area to be examined involves students with special needs who are in regular education social studies. Apart from the speciality areas of art, music, and physical education, special education students are often integrated into social studies and science. When considering such a programmatic move, it is imperative that the appropriateness of the curricular concepts presented and instructional regimen provided in the regular social studies program match the identified needs of the student. The following suggestions relate to instructional decision making and are offered to assist in evaluating the needs of the student and the regular social studies curriculum.

Special educators generally have a wealth of information and first hand knowledge of students including: current social and academic functioning levels, personal interests and experiences, attitudes, readiness, and so forth. It is valuable to evaluate the regular social studies curriculum in relationship to the student's characteristics and needs. Factors to be evaluated include: class prerequisites, required academic and social skills and resources utilized. Many of these elements can be adapted and modified by employing effective instructional and management strategies.

There are systems available to assist in evaluating the nature of the regular social studies curriculum in an organized manner. The Palmer Scales (1986) allow regular classroom teachers and special educators to determine the appropriateness of educational environments, curricula, and goals. The scales are designed to be used prior to the placement as part of the instructional decision making process.

These Palmer Scales are a decision making tool for parents, teachers, students, and other concerned individuals regarding the appropriateness of regular class placement.

The idea of systematically examining the regular education environment relates to instruments developed by Salend and Viglianti (1982) which evaluates very specific features and requirements of the classroom in instructional routine.

Regardless of whether students with special needs are in regular or special education, there are a number of instructional strategies that have been found effective. Patton and Andre (1989) developed a tabular resource highlighting these techniques (see Table 2). The original source also contains additional references for each recommended strategy so that interested parties can obtain additional information on topics of interest.

Table 2

Adaptations/Modifications in Social Studies

Instructional Practice	Specific Presenting Problem	Recommendation
Textual Material	readability	* taped texts and readers a. teacher b. other students c. volunteers d. Recordings for the Blind * multilevel texts--lower level materials * transcribe into Braille or print in larger type-face * read basal reading series of appropriate level that relate to topic (collateral reading) * cooperative learning arrangement * rewrite materials
	vocabulary level	* teacher prepared glossaries * go over terms prior to reading
	comprehension	* Prereading: preview reading selection a. go over photographs illustrations b. inspectional reading c. formulate hypotheses and questions

Instructional Practice	Specific Presenting Problem	Recommendation
		d. use advanced organizers (i.e., participatory graphic organizers, structured overviews) * Actual Reading: a. study and reading guides (e.g., comprehension level, pattern, concept, assistive guides) b. teach students to monitor and evaluate their reading * Post Reading: a. have students retell what they read--but structure this activity b. projects (e.g., editorials, debates) c. role playing/simulation activities d. time lines e. practice worksheets f. games (e.g., word hunts, cryptograms) g. relate graphics (e.g., pictures) from other sources to reading make scrapbook h. use language experience approach to recreate sections of reading i. have students redo graphs, charts, etc., in their own way
	study skills	* teach study skills directly
Lecture	attention	* use self-monitoring strategies * seat students appropriately * use students names regularly--keep active * use small groups
	comprehension	* Prelistening a. advanced organizers b. checklist of readiness behaviors c. go over new terms and vocabulary * Actual Listening a. study guide

Instructional Practice	Specific Presenting Problem	Recommendation
		b. tape record c. teach students to ask questions d. highlight major points e. give written information to sensory impaired students f. use relia as much as possible * Post Listening a. have student evaluate their listening checklist b. see suggestions under textual material
	notetaking	* teach notetaking * prepared outlines * framed outlines * write out unfamiliar terms, names, etc. * have students share notes--make copies
	guest speakers	* contact ahead of time--notify regarding types of students in class * obtain handouts ahead of time--adapt as necessary
Discussions, Role Playing, Simulation, Debates	understanding directions	* use clear wording and check for understanding
	participation	* encourage students to use reference materials (e.g., study guides) * have students prepare questions ahead of time * use small groups * create a supportive atmosphere * do not force students with communication disorders to speak
	comprehension	* review and summarize frequently * relate discussion to experiences * supplement with concrete activities
Inquiry-Oriented Programming	independent learning skills	* cooperative learning * teach these skills

Instructional Practice	Specific Presenting Problem	Recommendation
	conceptual development	* this approach may need to be more structured * some teacher-directed instruction may be needed
Maps, Globe, Picture & Graph Skills	conceptual development	* begin with maps of immediate environment * draw maps on floor
Media	comprehension	* use pre-viewing, viewing, post-viewing activities similar to those presented earlier * avoid introducing a historical topic with a film/filmstrip -- they are too factual-students -- need more background
	language level	* introduce vocabulary, concepts, names ahead of time
	outside readings	* teacher assistance will be needed in selection * encourage acquisition of information from variety of sources
Projects	understanding directions	* clarity and teacher follow-up
	organizational skills and self-direction	* cooperative learning * time management (i.e., scheduling and deadlines)
	conceptual development	* encourage concrete activities --total immersion * make relevant --e.g., teach social issues through music --e.g., use newspaper
	writing skills	* teach with other students * alternative projects/reports * de-emphasize this area for the project * allow alternative products -- oral reports, art work, photographic essay

Alternative Curricular Approaches and Concepts

If it is determined that the regular social studies curriculum is not appropriate through modification and adaptation, it will become necessary to review and implement alternative curricular approaches. These approaches strive to: (1) integrate many of the other areas found in special education curricula; (2) be community-based; and (3) emphasize relevant life skills that will foster maximum independent functioning.

Gross et al. (1978) outline four approaches to the organization of social studies.

1. Separate Subjects - this plan designates a block of time assigned to each subject that is taught as a distinct and separate entity. An advantage of this plan is scheduling a stated time allotment to each subject area. A disadvantage is that there is little relationship between subject areas.

2. Correlation of Subjects - a modified type of arrangement of separate subjects is the correlation of subjects. Some subject area themes may be related to an ongoing social studies unit. This plan preserves separate subject areas but permits reciprocal relationships. An example would be relating a science unit on health hazards to a social studies topic on various community jobs.

3. Integration or Fusion - many special educators find lines between subject areas are blurred. This becomes more evident at the secondary level where class periods, schedules, and graduation requirements often are at odds with special education curricular practices and have the potential to prevent mutual subject area enrichment. Teachers utilizing this approach generally organize their work into themes or units and employ block periods of time. See Table 3, Curriculum Fusion - Elementary, and Table 4, Curriculum Fusion - Secondary. An example of this approach could be writing a letter (writing) to the the Chamber of Commerce (community resources). The value inherent in this plan is that all subject areas promote learning and areas such as social and vocational competencies can be further emphasized. A disadvantage may be that some subject areas may become neglected. The need for balance reverts back to instructional decision making.

4. Combination of Approaches - Some well-planned programs combine the best features of the various approaches. It includes large blocks of time devoted to ongoing units but allows time for separate subject areas. An example would be utilizing reading and writing related to a major unit but also providing time for separate and distinct skill development in language arts during the day.

Alternative Curricular Concepts

Listed on the following pages are suggested concepts that can form the basis for a K-12 social studies program. These topics could be used as the framework for developing a customized curriculum. Topics have been broken down into educational

Table 3

CURRICULUM FUSION - ELEMENTARY

	READING	WRITING	SPEAKING & LISTENING	COMPUTATION	PROBLEM SOLVING
GOVERNMENT & LAW	Read about personal freedom guaranteed by Bill of Rights	Develop a list of legal terms, felony, misdemeanor	Paraphrasing Bill of Rights, difference between verbal and written contracts	Calculating taxes	Discuss when necessary or appropriate to hire a lawyer
CONSUMER ECONOMICS	Importance of reading labels	List items for a budget; write a personal plan for spending	Describe how to order food in a restaurant	Making change, balancing check-book, budget food for a whole week, calculate auto exp.	Comparison shopping; distinguish "wants and needs"
HEALTH	Read pamphlets on health service medical, and safety terms	Develop notebook of your personal health history	Explaining health problems, pick common illnesses and describe symptoms	Compute cost of medical bills--cost of having a baby	Selecting nutritious foods--describe safety practices
OCCUPATIONAL KNOWLEDGE	Reading help wanted advertisements	Filling out applications, social security	Participate in simulated/real interview	Compute an earnings statement --gross/net deductions	Describe standards of behavior for various types of employment
COMMUNITY RESOURCES	Yellow pages, libraries	Make wall chart of community services, Education, Health, Consumer, Legal	Give directions; call travel agencies for information	Use transportation schedules to calculate fares	Use maps to plan trips; develop stories about people using community services

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Table 4

CURRICULUM FUSION - SECONDARY

	READING	WRITING	SPEAKING & LISTENING	COMPUTATION	PROBLEM SOLVING
GOVERNMENT & LAW	Read about personal freedom guaranteed by Bill of Rights	Develop a list of legal terms, felony, misdemeanor	Paraphrasing Bill of Rights, difference between verbal and written contracts	Calculating taxes	Discuss when necessary or appropriate to hire a lawyer
CONSUMER ECONOMICS	Importance of reading labels	List items for a budget; write a personal plan for spending	Describe how to order food in a restaurant	Making change, balancing checkbook, budget food for a whole week, calculate auto exp.	Comparison shopping; distinguish "wants and needs"
HEALTH	Read pamphlets on health service medical, and safety terms	Develop notebook of your personal health history	Explaining health problems, pick common illnesses and describe symptoms	Compute cost of medical bills--cost of having a baby	Selecting nutritious foods--describe safety practices
OCCUPATIONAL KNOWLEDGE	Reading help wanted advertisements	Filling out applications, social security	Participate in simulated/real interview	Compute an earnings statement --gross/net deductions	Describe standards of behavior for various types of employment
COMMUNITY RESOURCES	Yellow pages, libraries	Make wall chart of community services, Education, Health, Consumer, Legal	Give directions; call travel agencies for information	Use transportation schedules to calculate fares	Use maps to plan trips; develop stories about people using community services

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levels. However, with the emphasis on individualization in special education, it is important to realize that it is difficult to specify a certain task at a particular level. Topics were obtained from several sources and are not to be interpreted as inclusive as many subject areas should overlap. The list is presented to stimulate the development of a framework for social studies and should be utilized in conjunction with the approaches discussed earlier.

K-1 Level:

Recognizes own uniqueness
Names ways people are alike and different
Recognizes necessity of basic rules
Distinguishes between work and play
Develops appropriate socialization skills with peers and adults
Recognizes feelings
Recognizes use of transportation
Demonstrates courtesy
Recognizes seasons and types of weather

1-2 Level

Recognizes families have structure and function
Recognizes families are alike and different
Respects property of self and others
Recognizes families and schools have rules
Distinguishes changes in people, families and places
Identifies basic human needs
Recognizes various forms of transportation as means to go from place to place
Recognizes how four seasons change weather
Observes classroom rules
Recognizes and accepts authority of parents, teachers, and school officials

2-3 Level

Recognizes neighborhoods are alike and different
Recognizes neighborhoods have a history and change
Recognizes neighborhoods are made up of different groups of people
Recognizes neighborhood services and resources
Recognizes all groups have rules and need to cooperate
Identifies needs and wants
Understands concept of past, present, future
Locates places on a map
Identifies maps, globes charts, and graphs
Relates transportation to producers and consumers
Recognizes environment affects how people live
Demonstrates acceptable conduct in class, hall, lunchroom and school bus
Anticipates consequences of his or her actions
Demonstrates respect for personal and public property
Makes friends with classmates

4-5 Level

Recognizes communities have history, provide services, have laws, solve problems, and change
Recognizes communities are alike and different
Identifies community services and resources
Identifies major community geographic features
Interprets symbols on maps, globes, charts, graphs
Identifies use of money
Identifies various careers
Recognizes resources are limited
Distinguishes between goods and services
Utilizes cardinal directions
Recognizes how to care for the environment
Recognizes that climate affects activities and industries in the community
Utilizes forms of transportation
Recognizes laws and rules are made for well-being of community
Recognizes responsibility for decision-making skills in community
Participates in cooperative activities
Arrives on time at events
Accepts authority and changes in routine
Describes people's roles and titles
Cares for personal belongings and respects property of others
Describes moods and emotions exhibited by others
Makes and maintains friends in school
Resolves personal and interpersonal conflicts
Acts courteously in public places

Middle School, Grades 6-8

Develops basic understanding of the meaning and value of friendship
Awareness of basic requirements for interpersonal relationships
Recognizes need for conservation
Identifies and recognizes contributions of ethnic and racial groups
Demonstrates and displays appropriate behaviors
Recognized cause and effect in social interactions
Interprets symbols on maps, charts, graphs, timelines
Computes distances and sequences events
Recognizes geographic features of community, state, etc.
Participates in group activities
Distinguishes why we need laws
Demonstrates proper behavior in public places
Develops familiarity with leisure activities
Develops understanding of importance of work
Recognizes traffic rules and safety procedures
States rights of citizens

High School, Grades 9-12

Recognizes current social, economic, political problems
Uses problem solving techniques
Recognizes principals of democratic government

Distinguishes between fact and opinion
Recognizes relationship between supply and demand
Independently uses public transportation
Recognizes trends in growth and development of United States
Describes the basic principles of the American political and economic system
Recognizes necessity for cooperation, understanding of global interaction and interdependence of people and nations
Understands structure of United States government, state and local
Develops skills in appropriate dating behavior
Develops familiarity with community resources for assistance in major life crisis
Demonstrates familiarity with legal documents
Demonstrates consumer knowledge in banking, purchasing, etc.
Identifies environmental protection and conservation of natural resource and energy
Demonstrates good work habits and attitudes in job seeking
Demonstrates good interpersonal relationships with peers and adults
Demonstrates appropriate procedures for changing jobs
Demonstrates knowledge in exploring occupational possibilities
Demonstrates selecting, planning occupational choices
Knowledge in exhibiting appropriate work habits and behavior
Knowledge in seeking, securing mandatory employment
Knowledge in maintaining good interpersonal skills
Knowledge in achieving problem solving skills--steps for responsible decision making skills
Demonstrates awareness of rights and responsibilities of citizenship
Recognizes procedures and responsibilities of voting
Demonstrates awareness of current events
Recognizes awareness of consequences of their actions

As stated earlier, the social studies program should focus on behavior change as reflected by improved attitudes, skill acquisition, and relevant knowledge gained. An additional outcome that should be sought is emphasis in the area of current events, which should occupy a central spot in any social studies program. Materials should be relevant and carefully selected with age, ability, interest and needs of the student kept in mind. They should be incorporated into daily and weekly schedules and should not be thought of as add ons or be left to chance. Methods of handling current events should be chosen wisely and adequate resources need to be available. For younger children current events can focus on events in the home, school, neighborhood and the community with increasing emphasis of events on further horizons. With older student the scope of current events will naturally be much broader and more complex.

Suggestions for Selecting Methods

Because there is such a wide variety of methods and activities available to teachers, the following ideas obtained from Kenworthy (1981) will assist teachers in determining which methods are appropriate for instructional purposes.

Lesson Objectives

This is the most important consideration. If you are trying to develop empathy, activities such as role-playing or sociodrama may be the best method. A speaker, film, or story may also help accomplish your purpose. If students are working on a community problem, research activities utilizing newspapers, magazines, and textbooks are beneficial.

Student Needs and Interests

Individuals and groups vary in their needs. In primary grades, the focus may rely on nonreading activities. Trips, games, puppets, and experience charts constructed by the class and teacher should be used often.

For upper grades, problem solving, role-playing, and listening allow students to express thoughts and feelings.

Teacher Style

Most teachers develop a personal style of teaching. Teachers need to continue to try new methods and activities to extend their range of skills. New ideas can be obtained from books, pamphlets, articles, and other teachers.

Novelty Factor

Greater learning will take place if there is novelty. Allow students to work on various committee assignments, panels, skits, exhibits, or murals. Culminating activities can be utilized at the end of each chapter to increase long-term planning and organizational skills.

Problem-Solving

Problem-solving techniques are of paramount importance in teaching social studies, particularly to special education students. These techniques can create a climate for teaching thinking skills. Since there are often too many facts for students to learn or memorize, problem-solving is a strategy that students can utilize to discover, analyze, inquire, and search for information.

The teacher has three major roles:

1. Provide stimulating environment
2. Provide questioning techniques
3. Assist in formulating generalizations on basis of student experiences

The long-range goal of all problem-solving is to encourage students to explore and reach their own conclusions.

Activities

There are many activities that can be chosen to address various social studies objectives. Activities should be chosen that reflect the aim of the lesson, needs and interests of pupils, and style of the teacher.

Activities utilizing visual aids, media equipment, and special projects can be valuable when teaching social studies. The ideas listed above will assist in the selection of appropriate materials, media, and equipment to be utilized with activities that are based upon the special needs of the students. The following activities may be used in the teaching of social studies.

Chalkboard

A chalkboard is usually located in every classroom and is visible at almost any distance if you write or print large enough. It can be used for many purposes by the teacher or the students. Here are few suggestions:

1. Assignments
2. Questions from class--or outlines for units
3. Timelines
4. Vocabulary--difficult terms
5. Brief summaries and review questions
6. Guide questions for a film or filmstrip
7. Charts, graphs, diagrams
8. Key ideas in a discussion

Simulation, Dramatic Play and Dramatization

Dramatics in one form or another allows students to internalize what they have seen or heard. It has importance for every age and grade level. Types of dramatizations may include:

1. Informal skits produced by older students
2. Formal plays written by students
3. Pantomine
4. Puppetry, using stockings, paper-mache, felt or other materials
5. Topics may be:
    a. Family situations: answering the telephone or paying for something at the store
    b. School situations: settling a fight on the playground, meeting of student council
    c. Community situations: the work of a firefighter, or an interview for a job

Films/Filmstrips

Films can take students on trips to distant places. Through sight, sound, and color, they can motivate learning and enrich experiences. Filmstrips are inexpensive and machines are easily run by teachers and students. They can be used by individuals, groups, and entire classes.

Group Work and Committee Work

All students need to learn to work in small groups or committees. This activity promotes good social learning. Most units should be introduced to the entire class and committees formed later. Since there are many skills involved in committee work, these skills will need to be introduced to the class gradually.

Overhead Projector

The overhead projector allows the teacher to face the class while giving instruction. Outlines of maps with overlays can be used for comparison and contrast. Students or committees can prepare materials that can be kept for future use. Rolls of plastic material can be used to show process.

Pictures

Pictures are a priority item for social studies. Many students cannot read information from the printed page. The following techniques may be used with pictures:

1. Using the questions "What do you see?," "Why is that important?," "What else do you see?," and "Why is this important?"

2. Ask students to look for specific details.

3. Ask students to arrange pictures in chronological order or to illustrate a concept.

Questions

Questioning techniques facilitate the learning process. Listed below are some comments and questions related to this technique.

1. Who should be asking questions in social studies classes? The students should be asking questions in order to promote problem-solving techniques and to stimulate higher order thinking skill.

2. What are some types of provocative questions to ask?

    a. Situation questions: Suppose you lived in a certain type of community or home. What would you need to know about this community or home in order to live?"

    b. Thought questions: "We have been studying ... for the last few days. Who is the most important person we have met?" "Why do you think this is the most important person?"

c. Observation questions: If looking at a picture ask, "What do you see in this picture which seems strange to you?" "Why?"

Community Resources

There are people in the school, the community, or the area who can be utilized as resource people. They include:

1. School: principal, nurse, guidance personnel, older students, members of student counsel, librarian, custodian, bus driver, school cafeteria personnel, and members of the Board of Education.

2. Community: The Chamber of Commerce or similar organizations, town officials, older resident, newspaper personnel, recreation workers, builders, factory owners/workers, store owners/workers, doctors and health officials, bankers, lawyers, photographers, police officers, fire fighters, post office employers, welfare workers, and state employers or legislators.

3. Country/World: Teachers, parents, other adults/students who have lived or traveled in other parts of the United States or the world.

Textbooks As Tools

Consider the textbook as an appetizer rather than an entire meal. It does not need to be followed page by page but should serve as a source to be supplemented and complemented by other methods. Some textbooks are too difficult for students to read. Teachers may need to supplement with other activities and methods as presented in Table 2. Note that there are commercially produced social studies texts developed for high school students but written at lower readability levels. (See Table 5 for examples of these.)

Timelines

One of the best devices for developing a sense of time is the timeline. It can be used with older students and also young children if categories are kept simple. For example, the categories may be yesterday, today, and tomorrow. Here are some suggestions for the use of timelines:

1. Use drawings and pictures underneath the categories.

2. Develop timelines with the class as you study a community.

3. Start a course in history with a simple timeline.

Field Trips

Field trips need to be carefully planned with a specific purpose or objective (see Table 2). They can be taken by students of any age and provide valuable experiences such as:

Table 5

Additional Easy Reading Materials

	Quercus Corporation	C.C. Publications
American History:	To the New Land In the Colonies Statehood The West and Civil War Industrial Giant The Americans Since 1914 American History Activities	The First Americans Explorers and Discovers Colonial Times Revoution and Independence Westward Expansion Civil War and Reconstruction Industrial Revolution Immigration World War I Roaring Twenties and the Depression World War II The Nuclear Age
Geography and World Cultures:	Geography One: The Earth and Its Resources Geography Two: The Earth and Its People	Geography
Civics and Government:	Goverment is News State and Local Government	
World History	World History: I, II, III	

Source: Patton, J.R. & Andre, K. (1989). Individualizing for science and social studies. In J.W. Wood, Mainstreaming: A practical approach for teachers. Columbus, OH: Merrill Publishing.

1. Provide firsthand experiences.
2. To provide experiences not possible in the school.
3. To give opportunities for learning social skills.
4. To stimulate interest.

Microcomputers

The use of microcomputers is observable in schools throughout the country and at all grade levels. Computer assisted instruction (CAI) and computer managed instruction (MI) can be utilized in the area of social studies. As more and better software is available, the attractiveness of this methodology can only increase. Some selected examples of microcomputer applications are presented in Table 3 of the Science chapter.

Additional Activities

There are a variety of activities which can be utilized in conveying information to students with regard to the topic of social studies. A list of these activities are described in Table 6.

SUMMARY

This chapter states that the area of social studies, with its emphasis on people, is an important aspect in the education of all students. Social studies, approached by incorporating other academic disciplines, provides a natural setting for the application and use of basic skills in problem solving. It offers special educators an opportunity to incorporate many of the areas identified in special education curricula that are community based and emphasize functional independent life skills.

Table 6

Additional Activities

The varieties of methods and activities from which a teacher can draw to promote learning in social studies is tremendous. Because the list defies categorization, methods and activities are presented in alphabetical order.

Bulletin boards
Cartoons
Charts and Graphs
Collecting
Committee Work
Community Mobility Training
Cooking food
Crossword Puzzles
Dances
Diaries
Dramas
Exhibits
Diaries
Field Trips
Films, Filmstrips, videotapes
Flannelboards
Flow charts
Games
Graphs
Halls of fame
Interviews
Listening Centers
Making Models
Maps
Mock panels, broadcasts, telecasts
Mock panels, broadcasts, telecasts
Mortgages
Murals
Music
Newspapers/Magazines
Penpals
People as resources
Photographs taken by students
Posters
Problem solving or inquiry
Puppets
Reading
Records
Role playing
Scrapbooks
Service projects
Stimulated activities
Story Telling
Surveys
Talks by teachers, pupils, visitors
Textbooks
Timelines
Workbooks or response books
Writing for materials
Written Work

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Chapter Twenty

Vocational Education: A Source Of Promise For Students With Mental Disabilities

Raymond E. Morley

OVERVIEW

All states provide for vocational education within their respective secondary and postsecondary institutions, and have their own plans for implementation. The state plans provide impetus and structure for school districts to implement programs and support services. These plans are guided and tempered through 60 years of legislation. The present federal law is entitled "The Carl Perkins Vocational Education Act."

The Perkins Act provides for separate programs and support services for students with mental disabilities. This chapter will identify practices used to accommodate these students in vocational education. These practices represent major guides for teachers to make vocational education work for the benefit of students.

BASIC CONSIDERATIONS

Definition

Vocational education has been defined many ways and debate continues regarding what it should be in secondary schools. Although commonly viewed as being part of the total career development program, every community has to define vocational education in a manner that fits local circumstances. A definition gives a base and rationale to work from and provides a means for explanations to others, including students, parents, employers, and other teachers. The following definitions are provided as a base for reference.

Federal legislation defines vocational education as organized educational programs at the secondary (usually grades 9-12) or post secondary levels which are directly related to the preparation of individuals for paid or unpaid employment or for additional preparation for a career requiring other than a baccalaureate or advanced degree. Vocational student organization activities are an integral part of the programs (Superintendent of Documents, 1984).

In Iowa, vocational education is defined as organized educational programs which are directly related to preparation of individuals for paid or unpaid employment or for further specialized training (Bureau of Career Education, 1987).

Traditionally, the field of vocational education has included seven major delivery areas within which programs developed at the local level. These areas should be considered when defining and planning student placements in vocational education at the secondary level:

1. Home economics and related occupations
2. Industrial arts/technology
3. Trades and industry
4. Business/office education

5. Distributive/marketing education

6. Health occupations

7. Vocational agriculture and related occupations (Bureau of Career Education, 1987)

The Iowa definition of each of these is as follows:

Home economics and related occupations

Home economics and related occupations includes instruction to prepare students to be homemakers, consumers, and paid employees. The content of instruction for homemakers and consumers includes food and nutrition, consumer education, family living, parenthood education, child development and guidance, housing, home management, and clothing and textiles. The content of instruction for paid employment includes food production, management and service; child care; apparel and textiles production, management and service; home furnishing and equipment production, management, and service; and institutional and home management support services.

Industrial Arts/Technology

Industrial arts/technology includes instruction to help students become aware of technological systems and potential careers in technology through exploration and actual practice and application of the basic principles involved in various forms of technology. The content of instruction covers manufacturing, energy and power, graphic communications, construction and transportation.

Trades and Industry

Trades and industry includes specialized instruction to prepare students for entry level occupations or further technical training. Specialized instruction is an extension of related instruction received through industrial arts/technology programs. Students are commonly placed in jobs in the community designed to further acquisition of entry level skills in a technological area.

Business/Office Education

Business/office education includes programs that prepare students for planning, organizing, directing and controlling all business systems and procedures. The content of instruction includes preparing, transcribing, systematizing, and preserving written communications and records; preparing and analyzing financial records; collecting accounts and receiving and disbursing money; gathering, processing and distributing information and mail; operating office machines and electronic data processing equipment; storing, distributing, and accounting for inventories of materials; operating telephone switchboards and delivering messages; and performing other business office duties.

Distributive and Marketing Education

Distributive and marketing education includes introducing students to marketing fundamentals and preparing them for careers in marketing. The content of instruction includes marketing principles, economics of supply and demand, consumer behavior, marketing research, marketing technology, and specialized instruction to prepare students for entry level careers or advanced study in marketing. Specialized instruction is an extension of classroom study where students are placed in jobs in the community to learn skills in one or more of the following: sales, retailing, marketing supervision and management, advertising and promotion, marketing research, distribution, or small business management and entrepreneurship.

Health Occupations

Health Occupations includes instruction to prepare students for careers in the field of health and medical care. Instructional content includes exploration of direct patient care, supportive and diagnostic patient care, supportive health occupations, and health-related occupations. In addition, instruction includes terminology, anatomy and physiology, ethical and legal aspects of health care, health team concept, self-care and wellness, first aid, cardiopulmonary resuscitation, vital signs, and communication skills. Specialized instruction for entry-level careers is conducted by placing students in jobs using the cooperative method. Experience is obtained in one or more of the following: emergency services, health aide, medical-clerical, and allied health.

Vocational Agriculture and Related Occupations

Vocational agriculture and related occupations includes instruction in animal science, crops and soils, horticulture, diversified agriculture, farm management, agriculture mechanics, and conservation of natural resources. Students also explore related careers in agriculture including agribusiness and receive opportunities to work in jobs related to their classroom instruction.

Cooperative Education

Cooperative education is a "method" used in vocational education to train students. Programs are implemented in all seven delivery areas within local school districts. It is defined as:

> A method of instruction of vocational education for individuals who, through written cooperative agreements between the school and employers, receive instruction including required academic courses and related vocational instruction by alternation of study in school with a job in any occupational field. These two experiences (in school and job) must be planned and supervised by the school and employers so that each contributes to the person's education and his/her employability. Work periods and school attendance may be on alternative half days, full days, weeks, or other periods of time (Bureau of Career Education, 1986, p. 34).

The cooperative training method is also used outside of vocational programs by special education teachers. The method is practiced in implementing work experience and work-study programs.

Vocational Student Organization

Vocational student organizations are commonly developed in local programs in the seven areas of vocational education. These organizations help students develop leadership skills, practice cooperation with others, become involved in community-wide projects, and improve self-image and respect. The local organizations commonly form units of state organizations and state organizations meet to form national organizations.

Not all vocational students participate in vocational student organizations and not all teachers form an organization. However, student organizations add formality and professionalism to the training effort and expand the potential of local programs to do more for students. All vocational students can participate in the organizations and many disabled students do. Special education and vocational education staff can work together in developing and maintaining vocational student organizations.

Formal student organizations include:

1. Future Business Leaders of America (FBLA) - Business and Office Education
2. Office Education Association (OEA) - Business and Office Education
3. Future Homemakers of America (FHA) - Home Economics and Related Occupations
4. Future Farmers of America (FFA) - Vocational Agriculture
5. Industrial Arts Student Association (IASA) - Industrial Arts/Technology
6. Vocational Industrial Clubs of America (VICA) - Trades and Industry
7. Distributive Education Clubs of America (DECA) - Distributive and Marketing Ed.
8. Health Occupations Students of America (HOSA) - Health Occupations

Objectives

Vocational education can yield different results for different students. Therefore, placement of students in programs should be guided by the results expected. Vocational education can help students a) acquire useful occupational skills, b) develop safe work habits, c) gain satisfactory work behavior, d) increase skill levels for occupational upgrading, e) increase awareness of need for acquiring basic academic skills, f) increase potential for work placement in related areas, and g) expand their knowledge base and self-confidence to make decisions about training and work (McKinney & Fornash, 1983).

The following section offers ideas about how to put vocational education into action for students with mental disabilities.

BEST PRACTICES

Placement

Vocational education should be considered a long term process and planning should begin early. Vocational education programs are commonly provided between grades 9 through 12 by local education agencies. These programs are made up of classes and courses beginning with exploration and extending into more refined skill development. Students in high school can complete a full program or take a few classes. Offerings in grades 11-12 often require pre-requisites; advanced typing or word processing should require the student to have taken a three or four class sequence of beginning typing.

Parents and students must be made aware of vocational education programs no later than the ninth grade. Information on all vocational programs in a local school district should be placed in a vocational education handbook and used to guide students, parents, and professionals involved in planning a student's program. In addition to the handbooks, teacher-parent meetings should be established to assure that parents and students understand the handbook content and implications for effecting the student's education and future. Handbooks should contain (a) the title of the vocational program and an over-all (four year) description; (b) a list of classes by grade level with objectives, material needs or lab fees for each and pre-requisites needed for entry status; (c) expectations of parent support and involvement; (d) instructors and other persons or agencies that can be used for assistance; (e) accommodations and support assistance (including special education) that can be provided; (f) evaluation, grading and reporting procedures used; (g) safety considerations and practices followed in each program; (h) liability and student insurance provisions; (i) transportation plans for students in cooperative education and student organization activities; (j) plans for student transition into post-secondary training or employment; and (k) a rational and procedure for placement of students in vocational programs and classes.

Although mainstreaming is strongly supported as a way to educate students with mental disabilities, it is not the only way. Both mainstreaming and separate classes for the disabled are commonly accepted service delivery models.

Before students are placed in vocational education classes, consideration should be given to:

1. deciding whether the student should be mainstreamed or served in a special vocational class,

2. deciding upon clear and measurable objectives of the vocational education class,

3. identifying the "learning problems" and appropriate teaching strategies that accommodate the learning problems,

4. clarifying expectations on grading,

5. establishing procedures for emergencies and preparing the vocational education teacher to handle questions about mental disabilities,

6. identifying personal/social behavior characteristics and management strategies that will be needed to ensure acceptance of the student, and

7. identifying what support will be provided by special education teachers and other special education support staff.

Further, special education and vocational education teachers should question how the students learn and behave. The information obtained will be useful in modifying instruction and altering the environment to accommodate learners. The questions can be used in guiding joint conferences between the vocational education teacher and special education staff.

The proper placement of students with mental disabilities in vocational education classes requires that the persons making the decision for placement recognize the objectives of the training. Therefore, a written set of objectives for each vocational education class should be prepared and shared with special class teachers, students and parents before decisions for placement are made.

Objectives give the vocational education and special education teachers a base to determine the specific skills needed to advance within a given class. As well, objectives serve as a base to building individualized education plans for students.

Material Modification

Modification of instructional methods and materials in vocational courses should be a major consideration in making student placements and maintaining services for students with mental disabilities. The recommendations to follow have been drafted to alert teachers to potential areas that may need attention.

Vocational education courses require many written assignments and much reading and numerous computation exercises. Many formats are used to present ideas to expedite learning and make it enjoyable. The following ideas have been collected from multiple sources and suggest ways to modify curriculum materials to accommodate students who learn in different ways (Benson, 1980).

1. Written assignments or reading materials should be typewritten or printed to ensure legibility. Typewritten material is best because it ensures consistency in the way it is presented to or encountered by learners.

2. Printed or typed materials should be sharp and not faded.

3. Printed materials should not be crowded together.

4. Emphasizing important words with techniques such as underlining and bigger letters helps attract attention to vocabulary.

5. The use of simple sentences reduces confusion.

6. Complex thoughts or multiple directions can be broken down to a simple one-step process listed in sequence.

7. Use task check-off blanks ___ or boxes ☐ to establish and reinforce task completion.

8. Use simple vocabulary when possible.

9. Color code worksheets or readings.

10. Break large sections of text into smaller parts.

11. For questions on worksheets, give the page numbers in the text or reading materials where the answers can be found.

12. Repeat important sentences, phrases, or paragraphs by:

    --putting them in the margins

    --|boxing| them in and emphasizing the print

    --doing summaries at the beginning of the text (introductory organizer)

13. Develop text in a programmed learning format.

14. Emphasize important concepts, phrases, or sentences with special markings.

15. Use constant terminology throughout text or written assignments when referring to a concept.

16. Use cues within reading material to direct students.

17. Give examples for new terms.

18. Use captions (comic book style), pictures, maps, or graphs to support the meanings of words or ideas.

19. Game formats increase motivation and help to apply concepts and meanings.

20. Use duplicate handouts so students can compare information to the teaching aids being used during lectures and discussions.

21. Use interactive text formats to involve students in text.

    --Leave blanks in sentences and have student fill in blanks from text that is read.

    --Provide outlines of information; have students fill in detailed information in spaces left between outline headings.

    --Give words and word meanings and have students match the meanings and words. Do the same for concepts!

    --Give crisis situations and selections for solving crises. Match or have students solve crises through their own input.

    --Give lists of tasks and have students prioritize tasks into proper sequences or preferred sequences via ranking. Do the same for behaviors, safety, procedures, etc.

--Provide a problem and have students choose from solutions or provide their own solutions.

22. Use manipulative materials to sequence ideas, solve problems, or examine options.

23. Provide concept cards instead of concepts being printed on regular handouts. One concept is put on each card.

24. Use newspapers for applying learning and transferring learning to real life situations.

25. Support all text via audio visual reinforcement when possible.

Teaching Methods

The following techniques have proven helpful to vocational teachers when working with disabled learners. They have been taken from multiple sources (Foster, 1982; Department of Education, 1984; Mason, 1985; O'Brian, 1985) and can be used as a recommended list of ideas that special education teachers can share with vocational teachers.

1. Arrange for student to spend an extra class period each day with the special education teacher, reviewing the day's lesson if necessary.

2. Bring students into labs as soon as possible. The success they experience when they are young makes it easier to work with them when they are older.

3. Write out step-by-step instructions for completing a task or working with equipment.

4. Use visuals and examples when explaining.

5. Allow students to repeat tasks. Repetition sometimes up to 20 to 30 times is necessary.

6. Invite guest speakers to talk about topics covered in class to reinforce learning and make it real.

7. Visit businesses to observe persons completing tasks being taught in the classroom.

8. Use materials and forms in the classroom that come from businesses in the community to instill relevancy.

9. Break down complex tasks into small steps.

10. Let success beget success. Let students risk failure only when you are convinced the student has sufficient confidence to take the risks.

11. Put your rules in writing. Orient students to the rules and the consequences for not following the rules. Role play if necessary.

12. Whenever possible present concepts through senses - sight, sound, touch.

13. Team up students with mental disabilities with regular students who compliment one another.

14. Crosscheck basic understandings and don't assume students already know.

15. Tell students what they are doing wrong and help them change.

16. Call on students with mental disabilities often to respond to questions and presentations.

17. Praise students as frequently as possible.

18. Help students to learn to learn by practicing different learning strategies - brainstorming, comparing, summarizing, asking questions, organizing, and so forth.

19. Read test directions aloud in class and demonstrate if necessary.

20. Walk about room and observe student progress while testing and provide individual help.

21. Read entire tests aloud for poor readers or non-readers, especially where time is a factor.

22. Teach students study skills.

The following checklist was developed to assist vocational education teachers to assess their personal ability to reach low achieving students. It can be applied in local settings in a team effort to analyze and improve teaching techniques. It can serve as an excellent base document for discussion and as a reference point for special education teachers to ask questions about the interaction of the vocational teacher and students with mental disabilities. The checklist was taken from the Vocational Education Journal, (Martin, 1985).

Reaching Low Achievers--Checklist

	Yes	No
1. Do you call on low achievers less often than on high achievers to respond to questions or make classroom presentations	☐	☐
2. Do you provide low achievers with less accurate and detailed feedback?	☐	☐
3. Do you fail to give low achievers feedback on classroom responses?	☐	☐

4. Do you praise low achievers more frequently than high achievers for marginal or inadequate public responses? ☐ ☐

5. Do you praise low achievers less frequently after successful classroom experiences? ☐ ☐

6. Do you ask low achievers fewer follow-up questions and give fewer clues to answers? ☐ ☐

7. Do you wait less time for low achievers to answer questions? ☐ ☐

8. Do you interrupt low achievers more often when they respond to questions? ☐ ☐

9. Do you provide the answer or call on someone else instead of trying to improve a low achievers response by giving clues or rephrasing the question? ☐ ☐

10. Do you require less and lower quality work from your low achievers? ☐ ☐

11. Do you locate low achievers in a group or seat them far from the teacher? ☐ ☐

12. Do you pay less attention to low achievers in academic situations - smile less often and avoid eye contact? ☐ ☐

13. Do you use less direct instruction with low achievers and more seat work? ☐ ☐

14. Do you grade low achievers tests differently, failing to give them the benefit of the doubt in borderline situations. ☐ ☐

15. Do you interact less frequently in public with low achievers? ☐ ☐

* You should answer "no" to all questions.
* If you have 5 or more yeses - seriously consider changing your behavior.

Vocational Student Organizations (VSO's)

Students with mental disabilities can participate in vocational student organizations and can gain a great deal by experiencing the activities of the organization. When students feel a part of a VSO their rapport with teachers can improve and discipline problems can be reduced. Regular students can also benefit by being exposed to disabilities and learning to appreciate differences in working cooperatively with others on common projects.

Grading

One problem commonly cited in the use of traditional grading procedures is the manner by which the marks are determined. In some of the vocational coursesa majority of the grades or rank in the class may be determined on written tests and written work. A student with mental disabilities may experience difficulty in completing written tasks. Written tests and written work may not, therefore, adequately reflect the student's knowledge level. Teachers need to examine very carefully what procedures should be used in determining the appropriate grade or mark. Alternative or supplementary ways of evaluating and reporting student progress could include the use of other measurement devices. For example, the teacher might use some or all of the following methods: class interaction and discussion, projects, papers, verbal reports, student interviews, anecdotal records, logs, student files, and modified tests. By the utilization of some of these techniques, the teacher may not need to make modifications in the grade reporting system for the student with a mental disability. Instead, the strategy might be to employ alternative ways of assessing the student's progress toward the course objectives. In these cases, the classroom teacher would modify the evaluation procedures and not the progress reporting system.

Vocational teachers have often expressed a concern that they cannot vary the competencies required for success in their respective courses for the student with a disability. They argue that adjusting grading criteria provides an inaccurate representation of student skills, and further, that industry and business maintains standards that they expect of program graduates; therefore, allowing a student differential criteria for competencies would bring discredit to the school's training program. This is a legitimate concern if the school's vocational program chooses to provide only a letter grade or a dichotomous grade, and does not provide the potential employer with a list of skills or competencies completed by the student. The question should not be one of standards but rather reporting what skills the student has mastered. This problem can be resolved by the establishment of a competency checklist in a developmental sequence. If requested by the employer and approved by the student or his or her parents, a form containing information on the student's performance could be forwarded at the time of employment.

The curriculum of the vocational programs or the content areas does not necessarily have to be watered down because students with mental disabilities are enrolled. Instead, the instructional and evaluation procedures may need to be redesigned to more accurately reflect the needs and knowledge of participating students.

Table 1 provides a suggested list of adaptive procedures for modifying the evaluation and testing procedures for the student with a mild disability.

Competency Checklists

Competency checklists have been used in skill-oriented vocational courses. Checklists serves as guides to student progress toward goals stated in the instructional plan or individual education plans. For example, in the vocational auto mechanics course learning units broken into small modules permit easy assessment of skill acquisition. The advantages checklists offer include (a) more value than a grade

Table 1

Alternative Methods of Assessing Student Progress

Types of Modification	Procedures
Verbal tests	Test administered verbally by the teacher, paraprofessional, peer, or others to permit student to complete similar requirements.
Shortened test	Reduce the number of test items on a scale to permit additional time.
Levels of questions	Use different levels of questions for different students--similar to shortened tests, but the items are written at a more concrete level.
Length of time for completion	Increase the amount of time a student has to complete a test to allow for slower writing, reading, comprehension, or performance speeed. This is important with many students.
Frequency of tests	Utilize short written, verbal, or performance measures given on a frequent basis--daily or weekly--to assess student progress. This allows for more feedback on student progress.
Type of responses	Provide for short answer or simple marking of correct response by the student. Measures should be matched to students' response strengths.
Verbal review of information	Use verbal review of information rather than testing. Have student review the course or unit content with teacher, paraprofessional, peer, or resource teacher. This permits the student to present what he or she has learned and does not require that the student be tested via traditional test items.
Peer tutoring	Include peer tutoring for testing purposes. This permits the student to learn from peers. The peer tutor should receive some basic training.
Development of instructional packet	Have student develop a packet of materials to show knowledge and understanding of content of the unit. This shows what the student believes is important.

Checklists	Use developmental checklists to permit the observation of student learning in a sequential and organized way that shows student progress. Checklists are good in vocational courses. They permit the teacher to limit the number of formal tests.
Class interaction	Assess student participation in discussion which indicates student mastery of content.
Course projects	Measure progress towards final course product. In vocational classes, the standards may need to be altered when making comparisons with other students.
Performance	Assign the student to complete the task that requires specific skills you wish to measure. Evaluate the student's performance by observation or use of a checklist.

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alone, (b) more helpful information for the student, (c) meaningful information to parents and future employers, (d) more detailed information about the student's performance, (e) a pinpointing of weaknesses in the school instructional program, and (f) the prioritization of skills.

Implications

The checklist is an excellent way for the teacher to indicate the progress a student has made during instruction. The competencies for the checklist are derived from the course objectives and include means for determining student mastery of each step of the necessary skills. Detail and ease of use must be balanced in the use of checklists. Generally, the more difficulty the student is having, the more detailed the checklist needs to be.

An additional advantage of checklists is that they may be designed to allow varying mastery or application of each objective. Depending on school policy, progress may be translated into a letter or number grade or reported directly using the checklist.

The Iowa Training School for Boys at Eldora uses a competency based certificate (Figure 1) to report student progress in vocational programs. It is offered here as an example of a checklist that can be used to identify student progress.

Individualized Education Programs (IEP'S)

Public Law 94-142 (The Education for All Handicapped Children Act) and Public Law 98-524 (The Carl Perkins Vocational Education Act) establish the expectation that all educators work together and be responsible for educating persons with disabilities. Vocational legislation compliments special education legislation by

Figure 1

MIDLAND PARK SCHOOL

ELDORA, IOWA

VOCATIONAL CLIMATE CONTROL

Certificate of Competencies

BRIGHTER FUTURE THROUGH VOCATIONAL TRAINING

Be it known that ______________________ has successfully completed the competencies listed below. Given this ______ day of ____________________, 19___.

AIR CONDITIONING AND REFRIGERATION
- Orientation
  - History and Development ( )
  - Job Opportunities ( )
- Safety
  - General Safety ( )
  - Specific Safety ( )
- Tools
  - Hand Tools ( )
  - Special Tools ( )
  - Measuring ( )
- Tubing and Pipe
  - Tubing ( )
  - Tubing Operation ( )
  - Pipe ( )
- Basic Compression Refrigeration
  - Basic Mechanical Refrigeration ( )
  - Refrigerant System Accessories ( )
  - Refrigerants ( )
  - Evacuation ( )
- Sealed System Servicing
  - Pressurizing and Leak Testing ( )
  - Charging ( )
- Domestic Refrigeration
  - Refrigeration Fundamentals ( )
  - Sealed System Components ( )
  - Refrigeration Defrost and Electrical Controls ( )
  - Mechanical Servicing of Domestic Refrigeration ( )
- Window Air Conditioning
  - Fundamentals of Window Air Conditioners ( )
- Job Orientation
  - Orientation of Job ( )
- Applying for a Job
  - Job Application ( )
- Customer Relations
  - Customer Relations ( )
- Business Management
  - Managing a Business ( )
- Psychrometrics
  - Psychrometrics ( )
- Residential Heat Loss and Heat Gains
  - Heat Loss and Gain ( )
- Duct Design and Sizing
  - Duct Systems ( )
- Air Treatment
  - Treating of Air ( )
- Residential Systems
  - Residential Systems ( )

CARPENTRY
- Introduction
  - Safety and First Aid ( )
- Related Information
  - Lumber ( )
  - Measuring ( )
  - Hardware and Fasteners ( )
- Tools
  - Hand Tools ( )
  - Power Tools ( )
- Site
  - Builders Level and Transit ( )

ELECTRICITY
- Diagnosing Circuit Problems
  - Using Voltmeter ( )
  - Using Ohmmeter ( )
  - Troubleshooting Circuits ( )
- Diagnosing Appliance Problems
  - Reading Diagrams and Schematics ( )
  - Tracing Wires ( )
  - Troubleshooting Appliance Circuits ( )
  - Repairing Appliances ( )
- Diagnosing Motor Problems
  - Identifying Different Motor Types ( )
  - Determining Motor Problems ( )
- Wiring Motor Control Circuits
  - Installing Motor Control Devices ( )
  - Wiring Motor Control ( )
  - Troubleshooting Motor Control Circuits ( )

HEATING
- Introduction
  - Brief History of Heating ( )
  - Heat Sources and Combustion ( )
  - Glossary ( )
  - Amana Heat Transfer Module ( )
- Forced Air System
  - Heat Exchangers ( )
  - Fuel Oil Burners ( )
  - Gas Orifices, Burners and Flame ( )
  - Comfort Heating Furnaces ( )
  - Electric Heating ( )
  - Infrared Heating ( )
  - Humidification ( )
  - Solar Energy ( )
- Hot Water and Steam Systems
  - Heating Boilers and Piping ( )
  - Venting ( )
  - Basic Heating Control ( )

PLUMBING
- Orientation
  - Occupational Introduction ( )
  - Human Relations ( )
  - General Safety ( )
  - Applying for a Job ( )
- Tools and Equipment
  - Basic Hand Tools ( )
  - Power Tools ( )
  - Equipment ( )
  - Plumber's Tool Box ( )
  - The Plumbing Truck ( )
- Blueprints, Measurements and Calculations
  - Blueprint Reading ( )
  - Isometric Sketching ( )
  - Rough-in Locations ( )
  - Building and Plumbing Codes ( )
  - Metric Measurement for Plumbers ( )
- Systems Rough-In
  - Drainage Systems ( )
  - Water Systems ( )
  - Joining Pipe ( )
  - Pipe Fitting ( )
  - Pipe ( )
- Residential Systems
  - Private Water Systems ( )
  - Septic Systems ( )
  - Water Treatment ( )
  - Fuel Piping Systems ( )
- Fixture and Appliance Installation
  - Auxiliary Systems ( )
  - Water Valves and Faucets ( )
  - Drainage Connections ( )
  - Fixtures and Appliances ( )
- Water System Maintenance and Repair
  - Water Systems Maintenance and Repair ( )
  - Drainage Systems Maintenance and Repair ( )

SHEET METAL
- Introduction
  - Opportunities ( )
  - Sheet Metal Tools ( )
  - Sheet Metal Machinery ( )
  - Shop Safety ( )
- Getting Acquainted
  - Sheet Metal Types ( )
  - Material of the Sheet Metal Trade ( )
  - Fasteners for Sheet Metal ( )
- Developing Attitude
  - Using Patterns ( )
  - Cutting Metal ( )
  - Punching, drilling and riveting ( )
- Gaining Knowledge
  - Folding Edges ( )
  - Making Seams ( )
  - Turning, Burring and Raising ( )
  - Forming, Crimping, Beading and Grooving ( )
- Learning by Doing
  - Soldering ( )
  - Drawing for Pattern Drafting ( )
  - Making and Notching Simple Patterns ( )
- Visualizing Your Work
  - Parallel Line Development ( )
  - Triangulation ( )
  - Radial Line Development ( )
- Moving Ahead in the Field
  - Plastics ( )
  - Short Method of Pattern Development ( )

WELDING
- Oxyacetylene Gas Braze Welding
  - Oxyacetylene Setup ( )
  - Braze Weld Stringerbead ( )
  - Braze Weld Square Butt Joint ( )
- Oxyacetylene Fusion
  - Safety ( )
  - Setup Equipment ( )
  - Get Proper Flame ( )
  - Lay Beads with Filler Rod and Without Filler Rod ( )
  - Buttweld Joint with Filler Rod ( )
- Oxyacetylene Cutting
  - Safety ( )
  - Setup Equipment ( )
  - Set Proper Flame ( )
  - Lay Out Pattern ( )
  - Make Cuts and Restart Cut ( )
  - Cut Hole in Steel ( )
- Shielded Metal Arc Welding
  - Setup Welder and Get Proper Amperage ( )
  - Electrode Identification ( )
  - Stringer Bead ( )
  - Stop and Start Beads ( )
  - Buttweld ( )

BEST COPY AVAILABLE

_____ Total hours

x Completed

0 Not Completed

______________________ Instructor

______________________ Principal

______________________ Superintendent

promoting the idea that vocational educators and special educators work cooperatively to establish individualized education programs (IEPs) for students with disabilities entering vocational education. Often, vocational educators are expected to be involved in the IEP development without the advantage of proper training or experience. Consequently, they need the guidance of special educators, including help understanding the elements and steps involved in the process, and the means by which they can contribute. Some released or extended contract time for special education and vocational education teachers to work on IEP development to get cooperative planning started and smoothed out would be very helpful.

The specific role that the vocational educator plays in IEP development for the student with a mental disability should be clarified at the local level. If it is not clarified, confusion and conflict can be expected. Vocational educators need to establish a good understanding of what is expected of them in IEP development and their understanding should be reinforced by the principal of their building. The role of the vocational teacher must be worked out locally to accommodate working schedules, contracts, class loads, personal styles of interaction, IEP formats, and so forth. What can be done by one teacher may not be possible for another.

The following ideas are provided as a resource for establishing understanding of the vocational teacher's role at the local level. The ideas can be used for planning inservice or for guiding program implementation on a team basis.

The vocational teacher can:

1. develop and update specific goals and objectives for each class they teach and share them with special educators for the purpose of establishing goals and objectives for students;
2. identify and document academic competencies and thought processes that students must possess to be able to use existing materials and equipment and complete tasks expected within classes;
3. identify and document teaching techniques used in classes;
4. evaluate teaching materials for reading and math accommodations;
5. be a participant in IEP team meetings including all professionals and parents;
6. meet with parents to discuss vocational programming;
7. evaluate students' with mental disabilities progress and document progress using agreed upon evaluation techniques;
8. develop accommodations for instruction;
9. suggest types of support assistance needed from the special education teacher;

10 provide suggestions for advanced, cooperative or other appropriate training;

11. research, review and recommend equipment and environmental modifications to accommodate learners; and

12. work cooperatively with the special class teacher to team teach where possible.

Activities the vocational education teacher could facilitate are:

1. teaching specific job skills to prepare the student for employment or continuing education;

2. teaching job-related skills such as work habits, work attitudes, career awareness, decision-making, and job-seeking skills which will enhance the student's chances for success; and

3. assisting other staff persons in conducting student assessment (e.g., work skills, personal strengths) and identifying appropriate assessment instruments.

Vocational teachers are often uninformed about what special education teachers do. They are especially confused about what support they can expect from special education teachers. Therefore, it is very important that special education teachers make a list of things that they can do to facilitate the success of students with mental disabilities in vocational classes. This support can become part of the IEP planning. Some possibilities are to:

1. serve as an assistant in vocational labs to provide individual assistance;

2. provide tutoring in essential content needed for success in vocational education;

3. help supervise extended (before, during or after school) labs designed to give students more time to complete projects;

4. review vocational texts and help design materials that are more appropriate;

5. administer tests for mentally disabled students;

6. help develop alternatives for evaluating student progress;

7. help develop teaching materials (visuals, workshops) that are more appropriate for mentally disabled students;

8. review and critique vocational course objectives;

9. help task analyze activities within vocational classes to break tasks down into more achievable expectations;

10. review projects and equipment in vocational labs and help develop safety devices and jigs to accommodate students;

11. help locate job training potentials in the community and assist in job related instruction;

12. develop individual transition plans for additional secondary and post secondary training; and

13. help develop special publications for communicating vocational options open to students in high school.

Local districts have developed many different formats for individualized education programs (IEPs), but all must include the student's present level of educational performance, annual learning goals and short term objectives for the student, the extent to which the student will be able to participate in regular educational programs, projected dates for initiation and duration of services, and evaluation procedures for determining which objectives are being achieved.

The following goals and objectives are examples of how vocational education can be worked into an IEP.

Goal: The student will identify, remove, and replace automobile body and frame components.

Objectives:

1. The student will describe metal configurations and their purpose, frame shapes and their construction, and low center of gravity with 80% accuracy as measured by written and oral tests.

2. The student will . . .

Cooperative Education

Many vocational programs use the cooperative method to help educate students. Students are placed in the community for part-time paid employment to reinforce the training they are receiving through classroom instruction. When students with mental disabilities are involved, modifications in the process may be necessary. The following questions identify benchmarks for checking into cooperative programming and pinpointing areas for expansion, improvement and support assistance.

1. Are the Cooperative Programs used to help students explore careers (ages 14+) or train for careers (ages 16+)? Students should be able to explore as well as train and if a comprehensive program is not in place it should be considered.

2. Are pre-requisites required for entry into cooperative programs? Do the pre-requisites discriminate unfairly against students with mental disabilities?

3. Are subminimum wages used to assist in the employment of students? If subminimum wages are used has the practice been properly handled under Child Labor Laws as it relates to disabilities?

3. Are Targeted Jobs Tax Credits (TJTC) used in the employment of students? Are the credits being handled properly? If not, why not? Tax credits can boost employer participation.

4. Are Job Training Partnership Act funds being used to support the salaries of student workers? If not, why not?

5. Is on the job training program of the Association for Retarded Citizensbeing utilized? Is the program necessary to the efficient functioning of the existing program?

6. Is a vocational rehabilitation counselor working cooperatively with the program to provide available services?

7. Is the evaluation system used with students helpful to students? Is it conducted often enough? Does the system identify possibilities for modifications at the work place?

8. How are parents involved in the cooperative program? Are they informed of the program and the evaluation processes used to report student progress?

9. Are training plans and agreements being used? Are the plans and agreements appropriate for mentally disabled students?

10. Is there an advisory committee established for the cooperative program and does the committee have an appropriate representative for disabled persons?

It is very important that special educators understand cooperative programming in order to be effective either in providing viable support to vocational educators or in establishing separate programs for students with mental disabilities. Therefore, it is recommended that teachers seek out training in the cooperative method.

Some excellent resources for information include:

Coordination of Work Experience
17 Modules Written for Work Experience Coordinators
Burgess Publishing Company
Minneapolis, MN 55435

Procedures Handbook for Special Needs
Work-Study Coordinators
Aspen System Corporation
1600 Research Boulevard
Rockville, MD 29850

SUMMARY

There are seven delivery areas of vocational education that can be considered for designing support services or separate programs for students with mental disabilities. Each delivery area includes instructional programs, cooperative programming and vocational student organizations which offer different opportunities for students and which require unique modifications for accommodating students. Specific ideas for accommodating students with mental disabilities in placement, instruction, student organizations, and cooperative programming have been provided in this chapter. As well, specific ideas were provided regarding how vocational education can be incorporated into the development of an IEP. Attention was given to student evaluation and grading since monitoring student progress in vocational education remains critical to appropriate programming. The ideas provided establish a basis for experimentation on what vocational educators can do for a student with mental disabiities. The point is made that there are no sure answers and only through experimentation will results occur.

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Chapter Twenty-one

Written Language

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OVERVIEW

The development of written language skills represents the summit of the language hierarchy. Building upon oral language and reading, writing can be seen as a critical component and thus an important goal within programs of language development. This chapter concerns the general domain of written language as well as its major subdomains.

Traditionally, written language has been relatively ignored in the curriculum in both regular and special education. This lack of attention reflects historical neglect of research in this area. Recently however, written language has been on the ascendancy with significant increases in research activities and programming including the development of practical instructional techniques. These advances have begun to influence practice in both regular and special education.

Advances in research and programming in written language come at an opportune time as indicated by a 1986 media report from the federal government. According to this report, 80% of all high school students write inadequately, over 1/2 do not like the process of writing, and approximately 4/5 can not write well enough to insure that they will always accomplish their purpose. While these findings suggest major problems in writing for the general student population, one can deduce that the stresses and handicaps of students in special education programs accentuate these same problems.

BASIC CONSIDERATIONS

Facets of Writing

There are a number of specific facets of writing that serve as general programming considerations. Five general considerations are briefly discussed below.

First, in order to write, one must draw on previous linguistic experiences. Thus, written skills always relate to the language hierarchy. For this reason, prior problems in listening, speaking, or reading may be reflected, and perhaps magnified, in the area of writing.

Second, writing must be viewed as both process and product. Products typically serve as our primary goal. However, educators need to insure that students learn how to reach that objective. For example, some students may have the mistaken impression that the textbooks used in various subject areas were written by some obscure scholar who simply transcribed thoughts directly to a finished product. For these children, it would be helpful for them to understand the process behind that product; in this sense, we then would have an opportunity to emphasize the concept of the "rough draft."

Third, writing must be emphasized as a form of communication. Writing requires a specifiable audience which then necessitates the setting of purpose. Writers do not have the luxury of unclear ideas that can be clarified in further exchanges, as is the case with oral communication. As students learn to write, they need to keep in mind who will be the reader of their products.

Fourth, writing must be tied to cognition. Clear writing demands clear thinking. Prior to instructional or writing efforts, students should be given ample opportunity to discuss what it is they intend to write in order to be appropriately prepared for the task.

Finally, writing provides a unique opportunity for personal expression. In this sense, writing is not simply an achievement goal but also a vehicle. Writing can provide opportunities for the expression of feelings, attitudes, and concepts. Writing can and should become both an end and a means (Dehouske, 1979; Rich & Nedboy, 1977).

Model for Written Language

The process of writing can best be conceptualized as a multi-component model (Hall, 1981). As such, it becomes a series of three or four sequential stages which illuminates the teaching process necessary for facilitating student learning.

One example of a model of written language is presented in Figure 1. This model divides the process of writing into three stages: pre-writing, writing, and post-writing.

The prewriting stage is essentially a planning stage. During this time, the writer focuses on the development and elaboration of ideas, the setting of purpose, the organization of ideas in logical fashion, and the assessment of the reading audience. As noted in Figure 1, this particular model focuses on three interrelated aspects: stimulation, motivation (both intrinsic and extrinsic), and purpose (both creative or expressive and functional or utilitarian).

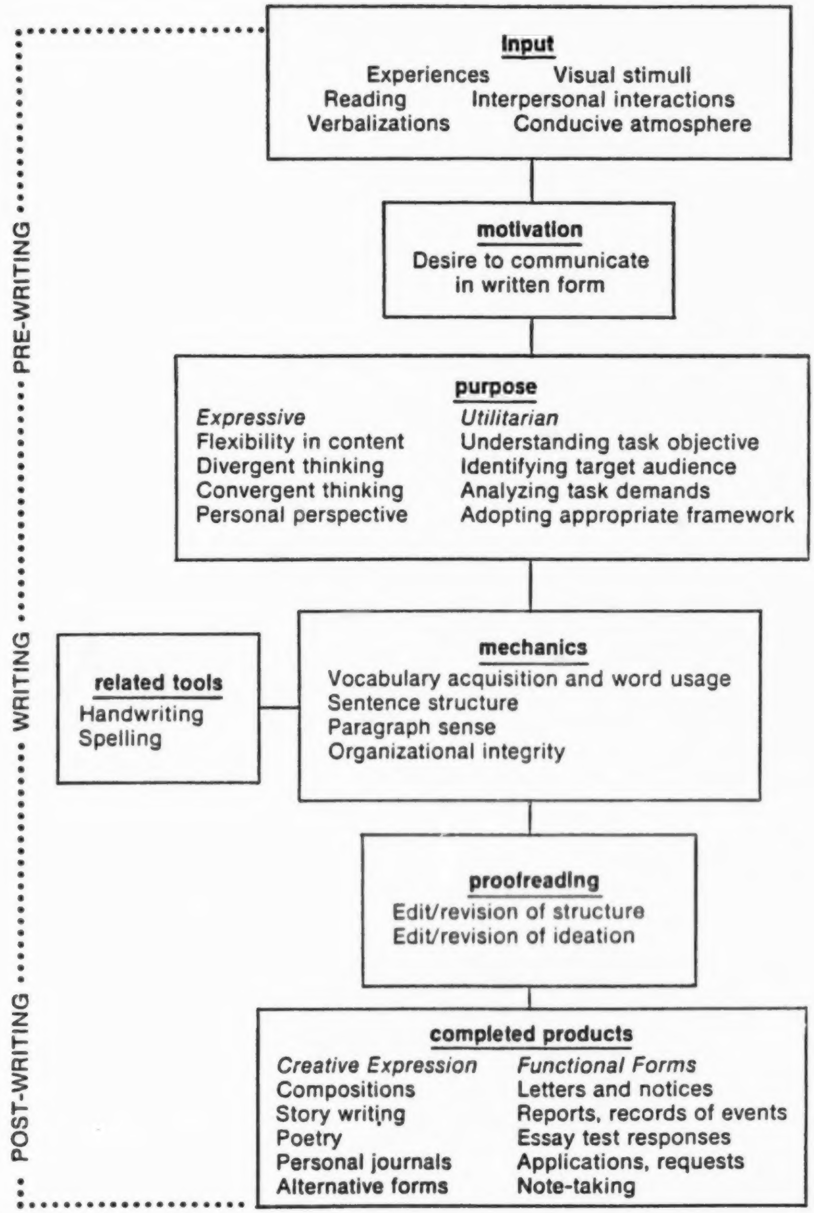
The writing stage is essentially the drafting or transcribing process. According to Vogel and Conrad (in press), this stage includes use of appropriate grammatical conventions, clear expression of ideas, specific word choices, diversity in vocabulary, appropriate forms of varied sentence structures, and appropriate transition reflective of a logical ideational progression. It also includes attention to the tool subjects of handwriting and spelling.

Finally, the postwriting stage includes rewriting through revision and editing. Postwriting should be a major concern with regard to the improvement of both the skills and ideas of the writing task.

It is advantageous to consider these three stages of writing as distinct and significant in their own right, primarily because such a distinction enables instruction to focus on the specific tasks facing the would-be writer. To illustrate the writing process as it relates to skilled and unskilled writers, Isaacson (1987) analyzed the particular characteristics of these respective groups of writers across the three stages (see Table 1). While considering the concept of three distinct stages. it is important to realize that in practice these phases cannot be seen as perfectly discrete. For example, planning continues to take place during the postwriting stage, and revising, to a limited extent, does take place during the drafting stage. This process of recursion (Scarmadalia & Bereiter, 1986) is certainly a common occurrence. Nevertheless an initial focus on the stages of writing provides a process-type approach for students. Such an effort can assist them in enhancing their thinking and in developing an "inner voice" by thinking about that they are to do (Thomas, Englebert, & Gregg, 1987).

Figure 1

Model for Written Language


Input
Experiences
Visual stimuli
Reading
Interpersonal interactions
Verbalizations
Conducive atmosphere
motivation
Desire to communicate in written form
purpose
Expressive
Flexibility in content
Divergent thinking
Convergent thinking
Personal perspective
Utilitarian
Understanding task objective
Identifying target audience
Analyzing task demands
Adopting appropriate framework
related tools
Handwriting
Spelling
mechanics
Vocabulary acquisition and word usage
Sentence structure
Paragraph sense
Organizational integrity
proofreading
Edit/revision of structure
Edit/revision of ideation
completed products
Creative Expression
Compositions
Story writing
Poetry
Personal journals
Alternative forms
Functional Forms
Letters and notices
Reports, records of events
Essay test responses
Applications, requests
Note-taking
PRE-WRITING
WRITING
POST-WRITING

Source: Polloway, E.A., Patton, J.R. & Cohen, S.B. (1983). Written Language. In E.L. Meyen, G.A. Vergason & R.J. Whelan (Eds.), Promising practices for exceptional children: Curriculum implications. Denver, CO: Love Publishing, p. 289.

Table 1

The Writing Process of Skilled and Unskilled Writers

Stage	Unskilled Writer	Skilled Writer
Planning	Does not participate in prewriting discussions.	Explores and discusses topic.
	Spends little time thinking about topic before beginning composition.	Spends time considering what will be written and how it will be expressed.
	Makes no plans or notes.	Jots notes; draws diagrams or pictures.
Transcribing	Writes informally in imitation of speech	Writes in style learned from models of composition.
	Is preoccupied with technical matters of spelling and punctuation.	Keeps audience in mind while writing.
	Stops only briefly and infrequently.	Stops frequently to reread. Takes long thought pauses.
Revising	Does not review or rewrite.	Reviews frequently.
	Looks only for surface errors (spelling, punctuation).	Makes content revisions, as well as spelling and punctuation corrections.
	Rewrites only to make a neat copy in ink.	Keeps audience in mind while rewriting.

Source: Isaacson, S.L. (1987). Effective instruction in written language. Focus on Exceptional Children, 19(6), p. 4.

Planning Stage

Three interrelated concerns have been identified within the prewriting or planning stage: stimulation, motivation, and purpose (Figure 1). Although it is arbitrary to separate these three overlapping concerns they are discussed separately here simply to facilitate a discussion of some basic information about this stage.

The importance of stimulation becomes clear when considering the concept that there must be input prior to any output. Stimulation can be developed through using other receptive language areas such as reading and listening, discussing ideas and concepts, and thinking about areas of possible interests for writing. An emphasis on stimulation through oral language does not insure improvement in specific task skills (Phelps-Gunn & Phelps-Terasaki, 1982); however, it does provide the requisite orientation and cognitive focus necessary to begin the writing task.

Motivation as used here refers to the desire to communicate. In the natural sense, motivation should come from within (Tway, 1975). A transactional view of oral language stresses the importance of the social base for communication (McLean & Snyder-McLean, 1978). The same emphasis is appropriate when considering written language.

Relevant and interesting writing tasks spark an interest to share some personal reflections or observations. However, particularly for adolescent learners who have a disability, a limited desire to write and reluctance to participate in such an assignment are common traits. Therefore, antecedent strategies geared to making the student interested may not be sufficient. In this instance, writing may not flow from the writer and extrinsic means of motivation must be considered (Brigham, Graubard, & Stans, 1972). Contingency management programs provide one approach to remedy motivational deficits in writing.

Alley and Deshler (1979) summarize several good observations about motivation. Identifying attitude toward writing as a key concern, they suggest that the following might prove effective: (1) encourage students initially to focus on ideation rather than mechanical skills; (2) expose students to a variety of experiences to build their knowledge base for writing; (3) use tape recorders as an initial way to record thoughts followed by efforts to transcribe and revise these thoughts; and (4) have students write daily or weekly journals without corrective feedback.

The third phase of the planning stage as outlined in Figure 1 is that of the setting of purpose. Two purposes have been mentioned earlier: expressive or creative and functional or utilitarian. It is critical for the writer to have a clear understanding of what the purpose is, particularly since expressive and functional writing have very different intents and thus require variant formats. Table 2, taken from Polloway, Patton, and Cohen (1981), outlines some of the specific questions that can actively involve a student in the setting of purpose.

Drafting Stage

The writing or drafting stage is the broadest of the three components within this writing model. It is of no surprise that problems and deficits are common in students who have a disability. Isaacson (1987) clearly contrasts the writing products of skilled and unskilled writers, providing a good overview of the types of difficulties that are common during this stage. Key concerns related to specific issues in writing instruction are the questions: how are skills most effectively learned and how are they most effectively taught?

Table 2

Self-questioning to Set Purpose

Expressive Writing

What interests me most about this topic?
What information do I know about this topic?
What else do I need to learn about it?
How can this information be related?

How can it best be organized?
What are my personal opinions about the subject?
How can I convey my personal feelings in my writing?

Utilitarian Writing

What is my objective in this task?
Who am I writing for? What do they know about this topic?
What do they want to know?
How can I make sure I convey the necessary and correct information?
Do I need to do research on the topic to be familiar with it?
How should I arrange and organize my writing to be most effective in meeting my objectives?

Source: Polloway, E.A., Patton, J.R. & Cohen, S.B. (1981). Written language for the mildly handicapped. Focus on Exceptional Children, 14(3), p. 306-307.

Distinctions made by Smith (1982) as elaborated on by Isaacson (1987) explore writer responsibilities. Two roles inherent in the writing process are the author role and the secretarial role. The author role concerns the formulation and organization of ideas, and the selection of words and phrases to express those ideas. On the other hand, the secretarial role emphasizes the physical and mechanical concerns of writing such as legibility, spelling, punctuation, and grammatical rules. Both roles are critical to the writer's success and influence instructional practice in written language. Discussion of these two roles provide an appropriate place to begin discussion on the writing stage.

Sink (1975) distinguishes between a focus on teach-write versus a focus on write-teach. The former corresponds reasonably well with the secretarial role of writing. This approach emphasizes formal grammar instruction, an emphasis on structure, skill exercises, perhaps diagramming of sentences, and often a reliance on worksheets and workbook pages. The teach-write approach is extremely common in classrooms; however, it is important to note that its traditional usage is not indicative of proven effectiveness. Sherwin (1969) extensively reviewed the literature on this topic and found little evidence of its success with nonhandicapped learners. There is even less reason to expect that the teach-write approach might therefore be effective for individuals with handicaps.

The key concern with such a teach-write approach is that the types of instructional activities listed above can be completed without any opportunity for actual writing. At the same time, such activities carry the threat of possible damage to motivation to write and require a major commitment of time--something that special education programs already have in limited supply for writing instruction (Silverman, Zigmond, Zimmerman, & Vallecorsa, 1981; Zigmond, Vallecorsa, & Leinhardt, 1980). While skills are important, they may not often be truly integrated in this fashion. Therefore, while necessarily playing a supplemental role, the teach-write focus does not appear to be an appropriate place to initiate instruction.

The alternative is to consider the write-teach focus which initially stresses the primacy of the author role. Ideation over form is emphasized in this approach so that ideas are honored and structure is later established. The write-teach approach also capitalizes on the desire to write while avoiding a stifling of the writing effort. Structure is then emphasized within the context of actual writing opportunities.

Graves (1985) succinctly stated the case for this approach when he noted:

> Most teaching of writing is pointed toward the eradication of error, the mastery of minute, meaningless components that make little sense to the child. Small wonder. Most language arts texts, workbooks, computer software, and reams of behavioral objectives are directed toward the "easy" control of components that will show more specific growth. Although some growth may be evident on components, rarely does it result in the child's use of writing as a tool for learning and enjoyment. Make no mistake, component skills are important; if children do not learn to spell or use a pencil to get words on paper, they won't use writing for learning any more than the other children drilled on component skills. The writing-processing approach simply stresses meaning first, and then skills in the context of meaning (p. 43).

If this second option is adopted, there are several clear implications for instruction. Most significant is the fact that students need time to write. Students need to write regularly for writing to improve. Graves (1985) recommended that students write at least four days per week and indicated that irregular instruction merely reminds students of their inability to write. Providing these opportunities to write in a positive, supportive atmosphere simply is a logical supplement; journal writing is a good example of an approach that has effectively been used for this purpose (see Fader & McNeill, 1968).

Once the emphasis on opportunity to write is confirmed, developmental skills can best be handled through selective feedback. Using this approach, one or at least a limited number of skills are emphasized at a given point in time. Students should not have to deal with heavily marked and edited papers. Rather, they will profit most from feedback specific to their own text and specific to the skills of importance to them. Selective feedback is a preferred alternative both to the extremes of inordinate corrections on papers as well as generalized, meaningless comments about "good work" or the like.

One way to accomplish the selective feedback goal is through the use of a teacher conferencing approach (Barenbaum, 1983). With this orientation, the teacher proofreads written assignments and provides feedback directly to students, most often in an oral conference. Such an approach provides an opportunity to introduce and reinforce specific skills and conventions.

During the drafting or writing stage, a number of key skill areas warrant instructional attention. The discussion below focuses on several that are particularly significant for instruction for students with handicaps. See the following reference for additional information: Cohen & Plaskon (1980); Polloway & Smith (1982); Wallace, Cohen, & Polloway, (1987); Hall (1981); and Johnson & Myklebust, 1967.

Handwriting

Handwriting is one of the two so-called tool subjects within the written language domain. It is included herein because of its contribution to successful writing; however, it is quite different from other writing skills in terms of the types of instruction required.

Several points about this area must initially be made. Although tradition in American schools has often been to teach for "perfection," few students achieve this level of performance. Rather a more realistic goal is that of legibility. It is safe to assume that for most adults, the development of a personal style which regularly, or at least sporadically, includes illegible or semi-legible letters and words is not uncommon. Therefore, instructional programs should avoid stressing the perfect reproduction of recognized standards and instead encourage a legible, yet unique style (Wallace, Cohen, & Polloway, 1987).

The succeeding paragraphs will discuss instructional methods, materials, and considerations for handwriting. Attention is given in particular to readiness concerns, beginning writing, and manuscript and cursive writing.

Prior to the development of legible handwriting skills, every child needs to have achieved the two objectives of establishing a preferred hand and coordinating vision with specific fine motor skills. Numerous skills have typically been suggested for the acquisition of actual handwriting skills including manipulation of objects, tracing of objects with the index finger in sand, manipulation of scissors for cutting paper, crayon and finger painting, placing forms in proper holes in form boxes and connecting dots and completing figures.

Several things should be noted about readiness activities. First, some are important simply for their own worth (e.g., cutting with scissors) and thus have merit regardless of their relationship to writing. There is no empirical support, however, for the hypothesis that these exercises assist in refinement of existing writing skills in the child already writing. Indeed, the focus on non-writing fine motor skill readiness may simply take time away from direct instruction in writing. Also, readiness activities which overemphasize fine motor skills may not be the most beneficial approach for children with limited skills. The handwriting process itself provides fine motor practice and thus can accomplish both linguistically-relevant goals in the area of written language as well as the motoric goal of enhancing fine motor coordination. As Hammill (1986) noted, so-called prerequisite skills can be naturally developed through directing students to write letters and words rather than through extensive readiness instruction.

The beginning handwriting stage is focused on the refinement of fine motor skills into coordinated communicative ability. Thus, initial concerns for instruction are most often on the specific motor demands that may present difficulty to the individual.

From a task analytic perspective, the process of assessing the troublesome components of the writing act begin with consideration of reaching for and grasping the writing utensil, slanting the utensil to the appropriate angle, and the arrangment of fingers. Especially for young or developmentally delayed children, the greatest problem is often the correct grip on the writing utensil. A variety of prosthetic aids have been used to facilitate appropriate grip. These aids include larger primary-sized pencils common to many kindergarten and first grade classrooms, wrapping of the pencil with tape, use of a multi-sided large pencil, and adaptation of a standard pencil with a Hoyle gripper - a three-sided, plastic device which encourages the child to place two fingers and the thumb in the proper position. Although research on handwriting instruction has not demonstrated the necessity of modifying writing utensils through the use of such prosthetic tools (Graham & Miller, 1980) the research has not focused on problem learners. Thus, it seems prudent that teachers assess the grip of individual students who are experiencing difficulties in order to determine whether these adaptations are warranted. Norton's (1980) suggestion that students be allowed to select whichever size is most comfortable for them seems particularly apt.

The next consideration in the transition to actual writing concerns the integration of visual-motor skills. An appropriate activity here is to engage in directionality exercises to reinforce the concept of left to right progression. Guided exercises to draw lines from left to right can be designed in a variety of ways to reinforce this skill.

A third consideration is the introduction of specific shapes and strokes for beginning manuscript writers. This is accomplished by focusing on the most common strokes that students will need to learn in order to be legible writers: straight lines, curved lines, diagonal lines, and circles. While the strokes are often taught apart from actual letters, the integration of instruction on strokes and specific letter forms will more likely reinforce writing progress.

In most classrooms, initial instruction focuses on manuscript writing. This practice continues in spite of a dearth of research supporting it as an initial approach. Readers interested in the issue of whether manuscript or cursive should be initially taught can consult Wallace et al. (1987), Early et al. (1976), Barbe, Milone and Waslyk (1983), Polloway and Smith (1982), or Graham and Miller (1980). Given its predominance in practice, manuscript form is discussed here initially.

The most effective approach to teaching specific manuscript letters and words is one in which teachers follow a consistent presentation. Most programs alledge that these forms are probably best taught in isolation, but that opportunities must be provided and reinforced for use in the context of actual writing exercises. Graham and Miller (1980) provided an excellent review of effective instructional techniques to facilitate letter formation. The discussion below is an adaptation of the specific steps they outlined for instruction.

Similar to specialized instruction in other curricular areas, the first step is teacher demonstration of the formation of specific letters. At this time, the student should be attending to specific strokes involved in the formation of the letter in question. Students' attention should be directed to the distinctive features of specific letters and to how they compare with previously learned letters. As the student actually begins to transcribe letters, the teacher should use the strategies of prompting (e.g., manual guidance during writing, directionality arrows, and other forms of cues such as color or grids) and tracing to facilitate the task.

Once there is no longer a need for intrusive prompting, instruction becomes a function of copying. Typically this includes copying from near-point (i.e., from a paper on the student's desk) followed by far-point (i.e., from the blackboard). Throughout the copying stage, and as a transition into writing from memory, students should be encouraged to engage in self-instruction by verbalizing to themselves what writing procedures they are following in forming letters and words.

Once a letter can be written from memory, there is a need for continued repetition to consolidate learning and enhance proficiency. Finally, corrective feedback, extrinsic reinforcement, and/or self-correction can be used to enhance retention as legibility is achieved.

Manuscript instruction requires selection of a logical sequence of letters to be presented. Task-analytic approaches and letter/stroke family approaches are the most appropriate grouping techniques. One possible grouping of lower and upper case manuscript letters is presented by Polloway, Patton, Payne, and Payne (1989).

Once the student has made appropriate progress acquiring competence in the formation of manuscript letters, the transition to cursive is begun. This usually occurs in the third grade in most school divisions. Criteria for student readiness include manuscript proficiency, ability to write all letters from memory, and self-initiated imitation of cursive forms linked to an apparent desire to learn that style (Mandell & Gold, 1984).

The change to cursive writing stress as the key features of that style to afford smooth transition for the learner. Characteristics of cursive style to be discussed and illustrated for the student are paper positioning, utensil remaining on the paper throughout the writing of individual words, all letters starting at the baseline, establishment of left to right rhythm, appropriate slant to the right, connection of letters, and spacing between words. The student should be encouraged to begin with manuscript letters that can directly evolve into cursive forms.

The instructional procedures for manuscript writing (discussed above) are equally valid for cursive instruction, although, given the loops and flourishes of many letters and the unique forms of specific letters, attention to distinctive graphic features becomes even more critical. The major difference is in the instructional sequence followed for the introduction of letters, though there is no proven system that needs to be followed in cursive instruction. The sequence presented by Polloway et al. (1989) presents one alternative method of sequencing lower and upper case letters.

Instruction in both manuscript and cursive writing requires procedures that promote maintenance and proficiency. One technique originally reported by Lovitt

(1975) is selective checking. This approach is most appropriate for maintenance and proficiency in the formation of individual letters or words previously taught to students in either manuscript or cursive form. After students complete a daily assignment the teacher selects a specific letter to be evaluated. A model is then provided to the student with a criterion for acceptable legibility. Following this assignment, a quick review is made of each of the specific examples of the letter-of-day within ongoing written work. Illegibility then is used as a basis for assigning additional practice exercises while correct letter information becomes the basis for reinforcement.

Contingency management programs can also be useful for the development of handwriting proficiency. Reinforcement schedules based on tangible rewards, free time, and activities are helpful in encouraging students to improve legibility (Hopkins, Schutte, & Garton, 1971; Salzberg, Wheeler, Devar, & Hopkins, 1971).

The success of any maintenance/proficiency program is ultimately based on the active involvement of the student. Teachers emphasizing self-regulation provide the most effective long-term procedure to follow. Appropriate procedures include self-monitoring of letter or word formation, self-evaluation of how the individual letter/word compares to the established criterion, and self-reinforcement for successful performance (see Kosiewicz, Hallahan, Lloyd & Graves, 1982, and Graham, 1983, for specific examples).

Spelling

A second tool subject in written language is spelling. Unlike handwriting, spelling demands perfection and defies creativity. As a vehicle for communicating thoughts in written symbols, spelling serves as the intermediary between handwriting and written expression - drawing from the former and aiding in the development of the latter (Polloway & Smith, 1982).

Spelling disabilities can be assumed to be widespread and fall into two general categories: isolated deficits and difficulties related to a pattern of academic and language disabilities. The latter group is of particular interest for our purposes. For this group, spelling problems relate to other language disabilities. For example, reading difficulties frequently predict spelling problems since it is rare for children to spell more expertly than they read. It is clear that poor spellers will need remedial help (Otto & Koenke, 1969). While a full discussion of the sub-domain of spelling is beyond the scope of this chapter, the discussion that follows (adapted from Polloway & Smith, 1982) highlights particular specific word study approaches that can serve as the core of instructional efforts.

Fernald's (1943) multisensory approach to teaching language skills is one of the best known educational techniques for use with handicapped learners, though it is actually applicable to all learners. The following specific procedures for teaching spelling are based on Fernald's (1943, pp. 201-202) directions for children learning new words. The techniques provide an excellent example of the multisensory nature of the approach.

1. Look at the word very carefully and say it over to yourself.

2. See if the word can be written just the way you say it.

3. Shut your eyes and see if you can get a picture of the word in your mind. If you cannot get a clear picture of the word, you can remember the parts that are written the way you say them by pronouncing the word over to yourself or feeling your hand make the movements of writing the word.

4. When you are sure of every part of the word, shut your book or cover the word and write it, saying each syllable to yourself as you write it.

5. If you cannot write the word correctly after you have looked at it and said it, ask the teacher to write it for you. Trace the word with your fingers. Say each part of the word as you trace it. Trace the word carefully as many times as you need to until you can write it correctly. Say each part of the word to yourself as you write it.

6. If the word is difficult, turn the paper over and write it again.

7. Later in the day try writing it from memory.

8. Make your own dictionary.

While Fernald's methodology can be implemented as a strict model, flexible adaptations will be more realistic options for classroom teachers (see Miccinati, 1979).

Fitzgerald's (1955) approach is another program which, like Fernald's, relies on visual, auditory, kinesthetic and tactile modelities. The specific steps are:

1. Select a word that the child can understand. To insure that the child knows the meaning of the word, ask him or her to use it in a sentence.

2. Have the child trace the word in the air with eyes closed. The purpose of this stage is to develop visual imagery.

3. Have the child look at the word, close his or her eyes, and spell it orally.

4. Have the child practice writing words from memory. The words should be studied, covered, and spelled.

5. At the mastery level, ask the child to write the word from memory and, if correct three times, enter it into a word bank or onto a mastery list.

Fitzgerald's (1955) approach suggests specific ways to develop spelling skills. However, as with Fernald's (1943) method, a major advantage is its use as a prototype for the development of individually tailored instructional sequences.

The Orton-Gillingham-Stillman method is another intensive multisensory approach for remedying language problems (Gillingham & Stillman, 1960). The simultaneous oral spelling (SOS) component of the program is of special interest here. It heavily relies on sound-symbol correspondences and is therefore especially useful for teaching regular words. SOS capitalizes on the association of how a word or a letter looks, sounds, and feels when it is being written. Steps to institute the approach include:

1. A regular word is selected and pronounced by the teacher (e.g., "sat").
2. The student repeats the word after the teacher.
3. The student says the sounds in the word. (This is an analytic phonics sequence.)
4. The student names the letters used to represent the sounds.
5. The student writes the word, naming the letters as he/she writes them.
6. The student repeats the word after it has been written.
7. As the student becomes a more proficient speller, steps two and three can be omitted.

The SOS approach stresses phonetic analysis in the spelling of words that follow regular patterns and can be adopted for modified use.

Since the English language provides "productive relationships" (Hodges 1966, p. 332) between sounds and symbols, instruction in rules is important as a mediating influence in spelling. Such an emphasis considers a possible complement to spelling instruction. To teach rules or generalizations, the following sequence (Brueckner & Bond, 1955, p. 374) can be helpful:

1. Select a particular rule to be taught. Teach a single rule at a time.
2. Secure a list of words exemplifying the rule. Develop the rule through the study of words that it covers.
3. Lead the pupils to discover the underlying generalization by discussing with them the characteristics of the words in the list.
4. Have the pupils use and apply the rule immediately.
5. If necessary, show how the rule in some cases does not apply, but stress its positive values.
6. Review the rule systematically on succeeding days. Emphasize its use, and do not require the pupils to memorize a formalized statement.

See Graham and Miller (1979) for a list of rules that lend themselves to such an approach.

The last approach to be discussed is in a review of research on spelling. Graham and Miller (1980) concluded that the corrected-test method resulted in the greatest spelling improvement. Under teacher direction, students correct specific spelling errors immediately after being tested. This procedure enables students to observe which words are particularly difficult, to identify the part of the word creating the difficulty, and to correct the error under supervision.

A final note needs to be made concerning spelling. Whenever a child encounters an opportunity to spell a word that is not known, there is a risk of a conceptual break in his expressive efforts (see Personkee & Yee, 1966, 1968). Students should be encouraged to attempt an approximation of the word during the writing stage and to plan to review and correct it during proofreading exercises in the postwriting phase.

Vocabulary Development

The primary goal of instruction in vocabulary is to expand the options available to students in their composing efforts. Such expansion should include efforts to increase the variety of words used while enhancing the complexity and descriptiveness of students' written language efforts (Wallace et al., 1987).

A good beginning point for vocabulary development is the student's spoken language. The language experience approach (LEA) offers a natural lead-in by combining lessons that include attention to listening, speaking, reading, and writing. With LEA, students dictate stories which teachers transcribe for subsequent reading. Through the student's revising of stories, the linkage from oral to written expression can be achieved. LEA can assist in shaping the strength of the student's writing vocabulary in the direction of his speaking vocabulary.

Several strategies used with specific writing tasks may be of assistance. Students can generate specific words for the teacher to write on the blackboard for illustration and later use in an assignment. A bulletin board may display a list of words which students can copy and place in a notebook for later use. This procedure can be especially helpful with high frequency words that are spelling demons. Since the demands of spelling can produce a conceptual break in the writing task for poor spellers, it is more important to reinforce word use rather than correct spelling. By providing accurate spellings of words which are likely to be used before the task begins, interruptions in the conceptualization process are avoided (Wallace et al., 1987).

Instructional activities should also focus on enhancing the development of descriptive language. For example, students can brainstorm alternative words to use in a specific instance and then systematically replace the words in their own written compositions. This exercise can be done with synonyms as well as with a variety of adjectives and adverbs in order to increase the descriptiveness of an individual composition.

The use of reinforcement contingencies can also prove helpful in developing a broader lexicon. The variety of words used can be analyzed through the use of a type-token ratio or by the tallying of the number of unusual words used by the student (see Polloway et al., 1983). Reinforcement contingencies can then be established, respectively based on the strength of the ratio or frequency of words counted that are not a part of the student's typical writing efforts.

In conclusion, it is helpful to consider a caution relative to vocabulary development. As noted by Cohen and Plaskon (1980), it is preferable to develop a smaller, accurate vocabulary than of a larger, perhaps superficially impressive one. In this way, fluency is not sacrificed for improvements in overall lexicon. For some students, especially those who are lower functioning with limited writing ability, the most appropriate strategy is to assist them to acquire and correctly use a limited number of words. This is particularly apt when the curriculum focuses on functional writing.

Sentence Development

The critical element in syntactical development is the sentence. It is common to find that the poor writer's efforts are characterized by either safe, repetitive short sentences or by rambling prose, absent of structure. Thus, there is clear benefit to learning to write in appropriate sentence structures.

It is important to balance encouragement for "real writing" with use of patterned sentence guides and structures (Isaacson, 1987). Through the use of such guides, students are relieved of some of the content demands and structural ambiguities and can concentrate on effective communication. The simplest form of patterned guide is labeling a picture in a proscribed sentence pattern; for example, one could have the student label simple objects with a sentence such as "This ball is red."

After this beginning, several alternatives are available. A relatively straightforward technique for teaching sentence structure was developed by Giordano (1982) and is referred to as the CATS approach. The approach includes the four stages of Copy, Alter (i.e., a substitution of a word), Transform (i.e., changing a tense, number, gender, negation, interrogative), and Supply a response (to a teacher-generated question). This approach provides a simple transition from initial writing to the subsequent use of appropriate sentence structures. The key is that students are encouraged to actually write and move from initial copying to the generation of responses.

A more systematic approach to sentence development is contained within the Phelps Sentence Guide (Phelps-Terasaki & Phelps, 1980). The Phelps guide is based on the use of the Fitzgerald key with individuals with hearing impairments and is derived from an analysis of sentences into specific parts according to their functions. Although traditional grammar instruction has usually been done through skill instruction on the parts of speech, for many students it can better be accomplished by substituting a focus on the functional nature of the respective parts of speech (Wallace et al., 1987). With the Phelps program Wh - questions are used in lieu of the names of the parts of speech.

Figure 2 provides an example of the Phelps Sentence Guide as it is presented in the program's manual. Through the use of this program students can learn how to expand from simple phrases to more complex sentences.

Figure 2

Phelps Sentence Guide (Sample)

THE PHELPS SENTENCE GUIDE:

First? Second? Next? Then? Last? Finally? At Last? Later?	Which? How many? What kind of?	Who? What? How much? Which? How many? What kind of?	Doing? (is are was were am have had do did does)
	The fat	boy	is eating
		The man in the long scarf	is driving
		The rocket	is flying
	The funny	clown	is juggling
		The boy in the raincoat	is riding
		The man in the boots	is riding
	The two	girls.	are giving.
		The ghost	is scaring
	The pretty	lady	is wearing
		The pitcher	is throwing
		The bird	is building.

SAMPLE STAGE 1 SENTENCES

What?	For what? To what? To whom? For whom?	When?	Where?	How? Why? If? So? Because? So that? Since?
cake				because it is his birthday
a sports car.				
			to the moon.	
bottles.				
his bike		at night.		
the horse			on the street.	
the dog	a bath			
the boy				
a long dress				
the ball	to the catcher			
a nest			in the tree.	

Source: Phelps-Terasaki, D. & Phelps, T. (1980). Teaching written expression: The Phelps sentence guide program. Novato, CA: Academic Therapy, pp. 16-17.

Sentence extension or expansion approaches as described above can be used in both analytic and synthetic fashion. A previously generated sentence can be used and analyzed across a blackboard to show how it is broken down into its component parts: A series of words and phrases can be generated for each column and then synthesized together to form sentences. In either instance, the benefit of the approach is that it enables students to appreciate how lexical items can be used to vary sentence usage, sense, and generation.

A next logical step toward the expansion and extension of sentences is through the use of sentence combining. Sentence combining involves the expansion of simple sentences to more complex ones. Research indicates that this is an effective way to improve the overall quality of writing and can assist in increasing syntactic maturity (Isaacson, 1987; Scarmadalia & Bereiter, 1986).

Among the most commonly used programs of sentence combining is the one developed by Strong (1983). In Strong's program, the student is confronted with the task to initially combine clusters of sentences - he is informed that this can be accomplished in a variety of ways and that no specific response is indicated. For example, below is a cluster that appears early in the program.

2.1. Cowboys swagger around.

2.2. They get their gear together.

3.1. Clowns roll out their barrels.

3.2. The carrels are battered.

4.1. Bulls stand in their pens.

4.2. The bulls are huge.

5.1. The sun beats down.

5.2. The announcer introduces the first entry.

6.1. People lean forward in the bleachers.

6.2. They strain to see the chute.

7.1. A shout goes up.

7.2. The bull comes charging out.

8.1. He is a giant animal.

8.2. He has a tornado's energy.

9.1. His eyes are fierce.

9.2. His horns are wicked.

10.1. The cowboy is tossed to one side.

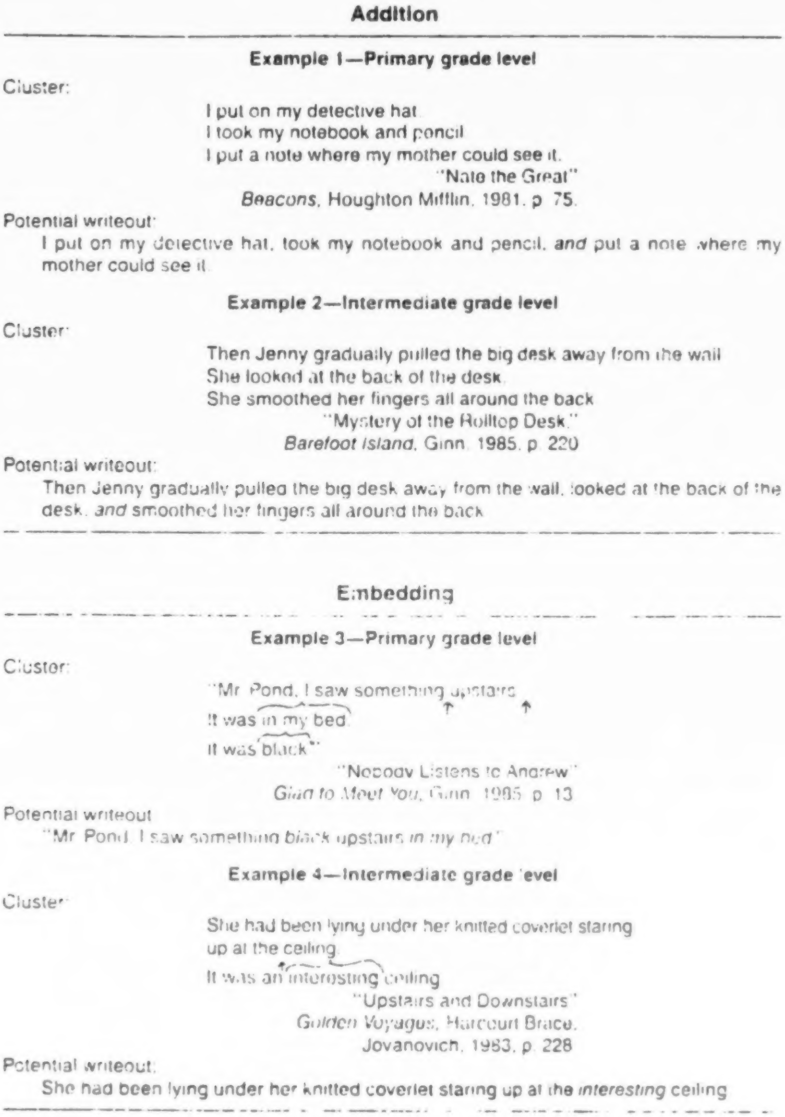
10.2. He tumbles end over end. (Strong, 1983, p. 5)

While Strong's (1983) program does not begin with true writing in that students are working from what is already written, it encourages students to expand and develop their own creation. In addition, the individual tasks finish with an "invitation" to finish the story which then relies on students generating their own ideas.

While Strong's program provides a positive prototype for instruction in this area, it would clearly be limited if used with students with handicaps. In particular, the lessons are not extensive enough to provide the degree of practice necessary for students who have difficulty in writing. Therefore the use of the sentence combining approach dictates that teachers supplement such a program by generating their own clusters. One example of an approach to doing that was presented by Reutzel (1986) who illustrated four types of sentence combining techniques. Two useful approaches for students with difficulties in writing are addition and embedding. Examples of these respective techniques are presented in Figure 3.

Figure 3

Alternative Sentence Combining Techniques



Addition

Example 1—Primary grade level

Cluster:

I put on my detective hat.
I took my notebook and pencil.
I put a note where my mother could see it.
"Nate the Great"
Beacons, Houghton Mifflin, 1981, p. 75.

Potential writeout:

I put on my detective hat, took my notebook and pencil, *and* put a note where my mother could see it.

Example 2—Intermediate grade level

Cluster:

Then Jenny gradually pulled the big desk away from the wall.
She looked at the back of the desk.
She smoothed her fingers all around the back.
"Mystery of the Rolltop Desk."
Barefoot Island, Ginn, 1985, p. 220

Potential writeout:

Then Jenny gradually pulled the big desk away from the wall, looked at the back of the desk, *and* smoothed her fingers all around the back.

Embedding

Example 3—Primary grade level

Cluster:

"Mr. Pond, I saw something upstairs.
It was in my bed.
It was black."
"Nobody Listens to Andrew"
Glad to Meet You, Ginn, 1985, p. 13

Potential writeout

"Mr. Pond, I saw something *black* upstairs *in my bed*."

Example 4—Intermediate grade level

Cluster:

She had been lying under her knitted coverlet staring up at the ceiling.
It was an interesting ceiling.
"Upstairs and Downstairs"
Golden Voyages, Harcourt Brace,
Jovanovich, 1983, p. 228

Potential writeout:

She had been lying under her knitted coverlet staring up at the *interesting* ceiling

Source: Reutzel, D.R. (1986). The reading basal: A sentence combining composing book. The Reading Teacher, 39, p. 196.

Paragraph Writing

The transition from the development of sentences to the writing of full essays and compositions can come through paragraphs. For students with handicaps, paragraphing should not be a skill taken for granted since it is an important concept that must be part of any successful written communication. Paragraph instruction provides training in organizational skills while assisting students in enhancing the integrity of their entire written manuscript.

To begin instruction in paragraph writing, it is useful to consider the concept of the topical sentence. Topical sentences, provide an opportunity to reinforce the fact that paragraphs contain initial assertions and then elaborate on that assertion (Otto, McMenemy & Smith, 1973). Thus, an initial teaching strategy can be to provide students with a previously-written topical sentence to serve as the assertion and have them then write two or three sentences to describe the topical one.

Brief, functional tasks provide an excellent opportunity for the initial teaching of the concept of paragraphs. For example, writing a letter to purchase an item fits this format very well. The topical sentence can be the identification of what the item is to be purchased. The additional sentences then provide, a description of the item, a discussion of the form of payments, and the address to which it should be sent.

One helpful technique and useful skill for writing to assist in the building of paragraph writing in general is that of paraphrasing. One example of a paraphrasing strategy, developed by the University of Kansas Institute for Research on Learning Disabilities (Schumaker, Denton, & Deshler, 1984, cited by Ellis & Sabornie, 1986), is identified by the acronym of RAP. RAP refers to: R-Read a paragraph, A-Ask yourself what the main ideas and details in the paragraph were, and P-Put the main idea and details into your own words.

Postwriting

The general goals of writing instruction are to enable students to effectively communicate with others while achieving personal satisfaction with their efforts. In order for these goals to be accomplished, the revision stage must become a routine and integral part of the writing process.

For proofreading and revision to become acceptable to students, they must be sold on the concept of the working draft. To present this concept, the writing stage should be discussed as simply the initial effort to get on paper the information to be shared. The postwriting stage should be advanced as being of value as an alternative to the conceptual breaks that might occur within the writing task. The postwriting stage must evolve toward a positive association for students; it needs to be moved beyond the association of rewriting as punitive action taken by teachers.

Postwriting also requires the active involvement of the writer in the careful review and revision of what has been previously written. For this status to be attained, instruction must be more specific than the directive to students, 'Proofread your paper."

Initially students must have the opportunity to establish the concepts and thus activate the skills. Training to accomplish these objectives can begin by providing anonymous papers to students with direct instructions to identify correct and incorrect sentences, find three spelling errors in a paragraph, find all the capitalization errors, or find and correct the punctuation errors on a given page. After reaching acceptable criterion on such limited tasks, the students can shift to their own work.

A number of specific proofreading skills can be identified. Polloway, Patton, and Cohen (1983), deriving their suggestions from the work of Dankowski (1966) and Burns (1980), identify: the following ten questions to provide an outline of possible self-evaluation procedures:

1. Does each sentence make sense?
2. Is every word spelled correctly?
3. Are all punctuation marks used correctly? Are any needed marks omitted?
4. Are all words capitalized that should be?
5. Have I used descriptive words and phrases to express my ideas?
6. Are any of the points that I made vague and thus in need of clarification?
7. Are there more specific and precise ways to say anything in my paper?
8. Overall, is the paper organized in a clear way to make the reader's job an easy one?
9. Have I met the objectives that I set for the paper?
10. Have I chosen a good title (when applicable)? (p. 312)

Focusing on all of these items would be an absurd initial task for any student experiencing difficulties in writing. Therefore the assumption is that only one or two skills can be stressed at a given point in time. A helpful approach for the organization of proofreading activities is the use of the error monitoring, learning stragegy indicated by the acronym COPS. Schumaker and colleagues (1981) encouraged the use of COPS to represent the following tasks:

C Have I capitalized the first word and proper nouns?
O Have I made any handwriting, margin, messy, or spacing errors?
P Have I used end punctuation, commas, and semicolons correctly?
S Do the words look like they are spelled right, can I sound them out, or should I use the dictionary?

The COPS process is intended to be introduced one step at a time. Once students have learned a particular skill, they can be introduced to the process of proofreading for that skill. After they have been trained to proofread for each of the components separately, they can then be directed to use all four of them at the same time. COPS can subsequently serve as a way to review completed compositions or essays and search for particular errors as indicated.

Obviously there is far more to the process of proofreading than simply checking for capitalization, overall appearance, punctuation, and spelling. If students acquire these skills, instruction should then begin to focus on the higher levels of editing, with special attention to content and organization.

SUMMARY

Written language instruction has recently begun to receive the degree of attention in the regular and special education professional literature that it deserves. It has been the primary objective of this chapter to identify models and practices which represent promising approaches to teaching students who are experiencing problems in written language. The chapter now concludes with a discussion of best practices derived from Wallace et al. (1987). This discussion briefly highlights the major implications for teaching that stem from the previous discussion on the phases of writing.

In planning the teaching activities that take place during the planning stage the teacher must acknowledge the reality of how students present themselves for instruction. Assumptions should not be made that pupils with handicaps will have had the necessary experiential prerequisites to develop ideation, will have a desire to communicate via written means, and will understand their purpose in writing and the nature of their intended audience. Each of these factors should be addressed in the planning and implementation of instruction.

The actual drafting stage has been the beneficiary of a long history of variant foci. Throughout this pedagogical chronology, educators have consistently emphasized instruction on the structural features of language, at times to the exclusion of having children actually write. However, no data base exists in clear support of such a position with non-handicapped students let alone students who have learning deficits. Instruction during the writing stage should, therefore, tie together the regular opportunity to write with the periodic teaching of specific skills that can be directly applied to the students' own work.

The postwriting stage has traditionally been the least emphasized of the components of this curricular area. However proofreading cannot only provide an opportunity to learn valuable skills with immediate applicability but can also afford some benefits regarding positive attitude change. If correctly taught, the supervised process of editing and revision can promote the willingness to receive constructive feedback and the ability to sense improvement in one's own work. For students whose school history has been replete with failure experiences, such an emphasis can provide direction toward the development of strategies for overcoming their specific difficulties while also teaching them how to compensate for others.

Since the domain of written language is quite expansive, the various skill areas in this chapter can not be fully discussed. The reader is referred to the following sources for additional information: Cohen and Plaskon (1980), Polloway and Smith (1982), Hammill and Bartel (1986), Wallace, Cohen, and Polloway (1987), Hall (1981), and Johnson and Myklebust, 1967.

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Before you go . . .

Chapter Twenty-two

. . . *a little bit about "Where"*

David Hutchison
Greg A. Robinson

Excerpts of the chapter were taken from a working paper on Least Restricitve Environment authored by consultants from the Bureau of Special Education, Iowa Department of Education

OVERVIEW

Before these final few pages are read and you return to your assignment, whether that be with students or teachers, we wanted to take this opportunity to talk with you a little further on the concept of "where." "Where" meaning where all of this should take place. "This" being what has filled the previous pages: effective strategies in specific content areas that can be used in providing instruction to students with mental disabilities. Although the topic of "where" was introduced in the Integration chapter in the first volume, now that you have had a chance to gain some additional information with regard to different curriculum areas, it is important that a moment be taken to consider how does one make all the parts of the puzzle fit together?

The chapter on Integration in Volume I presented basic theoretical considerations and critical components as prerequisites to the formation of integration plans. That particular chapter could have been as aptly entitled: Mainstreaming, Least Restrictive Environment, or Innovation and Change. The following is a list of the considerations and critical components addressed in that chapter: 1) Partnerships in Education, 2) Local Ownership, 3) Individualized Service Delivery, 4) School Organizational Structure, and 5) Time and Energy.

Although the nationally noted authors who participated in the development of this monograph do not appear to be talking on different wavelengths with regard to the topic of Least Restrictive Environment (LRE), it is truly unfortunate that the terms "mainstreaming" and "integration" are used interchangeably by many other educators to describe the concept of LRE. P.L. 94-142 mandates that each state adopt a policy that makes a free, appropriate public education available to all children with disabilities in the least restrictive environment. While it is true that mainstreaming and integration are concepts considered to be subsets of the LRE and thus covered by the various laws and regulations, they are quite different and should not be used interchangeably. Our feeling is the concept of integration should be applied to populations of students with moderate and severe/profound disabilities where emphasis is placed on their educational program being located in the same schools as age-appropriate nondisabled peers, as well as planned interactions with those peers. The concept of mainstreaming is applied to the population of students with more mild disabilities where emphasis is directed towards the degree to which these students receive academic instruction in the regular education classroom with nondisabled age-appropriate peers.

The attention given to LRE, mainstreaming and integration issues over the past few years suggests that educators have not done all that could be done to meet the true intent of P.L. 94-142. Some of the criticism is no doubt justified but some is not warranted. Since the passage of P.L. 94-142, special education services have changed substantially as they have evolved to their present state. The conclusion to be drawn is that these service are "better than they were," but to assume we are "through with change" is false.

Educational problems are multi-faceted and complex; they require an awareness of the various influences and factors which will either promote or impede their successful resolution. More is not always better as questions of quality versus quantity is now the rule and not the exception. The delivery of special education services in the LRE is an educational problem; one that cannot be dealt with in isolation. No author, in the preceding chapters, talked of "do this only in self-contained classrooms." Time after time authors talked of eclectic approaches which combine several approaches to come up with one focus. Cannot the location or locations of where these services are delivered also be developed from examining a combination of past service models to develop new ones? Individual school buildings, school districts and communities must address the issue of LRE in its entirety and not as an isolated incident. The concept of LRE will take on new meaning as attitudes change, new service models appear, and new technologies develop. With this in mind, schools will constantly be in the process of innovation and change as they strive to meet the unique and individual needs of students with disabilities.

The concept of LRE should be viewed as an all encompassing umbrella, if you will, that guides, if not dictates, matching the needs of students to instructional and support service options. Later, we will talk about possible options for consideration, but imagine for now that each and every multidisciplinary staffing team considers the range of instructional programs, support service options, or combinations of both, available and selects the least restrictive placement in which the student's individualized educational program (IEP) can be successfully implemented. Further, for the purposes of this discussion, let us assume that the student's IEP truly reflects the needs of the student with accompanying goals/objectives/strategies to be implemented to meet those needs. On what basis do multidisciplinary staffing team members evaluate whether the most appropriate, least restrictive instructional or support option has been selected? The appropriateness of a placement decision is determined by whether the outcomes are acceptable rather than a review of the decision making procedures used in arriving at the determination. Thus, the IEP for a student is of paramount importance at the point of annual review, triennial review and throughout the process for measuring progress. It is through the measurement of change, the accomplishment of goals and objectives, and the assessment of unexpected positive and negative effects that assist educators, in retrospect, in evaluating the appropriateness of a decision.

The determination of the most appropriate instructional and support option in the LRE to meet the unique and individual needs of a students is not a "one shot deal." It requires a vigilance on the part of school personnel to continually evaluate the outcomes of the placement to ensure that the student's IEP is delivered in the least restrictive environment. Once the initial placement or the initial instructional and/or support option has been selected and the student's IEP implemented, mainstreaming and integration strategies become the "vehicles" by which a student's IEP is delivered in a lesser restrictive program when deemed appropriate. Essentially, the LRE is more than just a philosophy; it is a policy of matching students needs to instructional and support services determined to be most appropriate to meet those needs. Through the staffing process and continuous evaluation efforts, a school can ensure that the instructional and support services are appropriate and thus, the students is being served in the LRE. The concepts of mainstreaming and integration are subsets of the LRE policy because they permit school personnel to "move" a student's IEP to a lesser restrictive environment when program evaluation results would support that move. Again, the central concern is the student's identified needs and the "match" with the instructional and/or support options considered most appropriate to meet those needs. A multidisciplinary staffing team must guard against interpreting the LRE policy as a mandate that requires the "lesser the better" decision making process that in effect provides, at best, a minimally acceptable program option to meet a student's identified needs. It becomes apparent that a compromise that benefits students, parents, and educators is warranted. It is sad to say, at times, it appears that self-contained now, usually means self-contained later. This could be an acceptable tenet if the goal of education was to prepare students for the next grade or year of programming. However, eduction's mission is to prepare students for life. Thus a balance is required that allows students to learn skills which will enable them to participate in more vocational and domestic situations for their after school years, but allow them planned and purposeful opportunities to be a part of the mainstream during their school careers. This will then allow for additional recreation and community opportunities with nondisabled peers throughout their entire lives and contribute to the total development of both individuals with disabilities and nondisabled individuals who will live in and influence today's as well as tomorrow's society.

How then does one work towards achieving this balance? Not to sound trite, but we are not sure one person can. That is why the field of education is laden with the concept of "teaming." Education's nemesis has been the fact that many teams function like groups consisting of individuals working separately as opposed to individuals working together for a common purpose. If components of best practices could be offered in the area of LRE for groups to consider, we would recommend the following four points: 1) pre-referral services, 2) individualized service delivery, 3) staffing procedures, and 4) instructional and support service options.

Why would pre-referral procedures be discussed in a monograph that consists of hundreds of pages of strategies dealing with content aimed at students who have already been placed in special education programs? The answer is simple: prevention. The expertise developed by special education teachers in working with students with disabilities can serve as a tremendous support for regular education teachers as they work with their lower functioning students. Without this type of assistance, today's at-risk student is tomorrow's special education student.

Pre-referral procedures, formally developed at each building level, would seem a mandatory first step in meeting the LRE mandate. Preliminary to this discussion, however, is the realization that pre-referral procedures and/or any other form of service delivery development for that matter, must be developed jointly by administrative, special education and regular education personnel. Anything less jeopardizes the impact the system will have on the school. While most schools may indicate they have a pre-referral process in operation, many have not established written procedures describing that process. The obvious advantage to having a process or procedure in writing is to ensure the procedures are consistently implemented.

In our opinion, a LRE policy for a school cannot exist without an understanding of what each individual school has to offer students in the area of preventative services. It is a process of brainstorming with unit or faculty members, administration, support personnel, parents, etc., to determine strategies or interventions to be implemented and evaluated in meeting the identified needs of students. Conceptually, pre-referral procedures permit schools to deliver services to at-risk students at the least restrictive level of the service options. Schools which view pre-referral services as an opportunity to marshall their respective resources to provide quality services to their students have a better grasp of the significance of the LRE than those schools which view pre-referral services as just another compliance step in the process of identifying students with disabilities. Obviously, special education funding mechanisms go on trial immediately when schools invest heavily in quality pre-referral services. Unless modifications are made, some states which would include Iowa at this time, where weighted formulas for funding special education are used, run the risk of being penalized and stand to lose some of the same resources they have marshalled to provide services to these non-identified students. If only it were easier to strike the balance! Even with the risks involved, the first step in meeting the LRE mandate still lies with the development of quality pre-referral services. It is unfair however, to suggest that all schools adopt identical pre-referral procedures.

Individualized service delivery as a concept implies that each school building, school district and community is uniquely different from all others. The students population, teaching faculty and parent population within each school building and district have differing needs, interests and strengths. To assume that School A's LRE policy will meet with equal success at School B is not necessarily true. Components of the policy, maybe; total replication, probably not. Whether it is a LRE policy, a mainstreaming plan, an integration plan, or any other form of service delivery, it represent san innovation or change that must be tailored to the individual needs of the school. Inherent is the belief that within every school, ample expertise exists to solve the majority of problems faced by the school. Trusting in a school's ability to know its own problems, to prioritize its needs and to set about to solve its own problem is a very powerful force behind local ownership and individualized service delivery. While this basic trust in the competencies of school personnel is essential, steps need to be taken to identify those competencies and resources that can be made available to meet the needs of the respective student population. As a place to start, it is recommended that individual schools engage in the following activities: NOTE - It is essential that representatives from special education, general education, support personnel, administration, and when appropriate, parents, be involved in this process of problem-solving.

1. The identification of each building's student population who have mild disabilities and their needs. "Who" are they and "what" do they look like?

2. The identification of each building's student population who are at-risk and their needs. "Who" are they and "what" do they look like?

3. The identification of the roles which should be played by parents in supporting each building's efforts to meet the needs of students who have mild disabilities and students who are considered at-risk.

4. The identification of the roles which should be played by regular education and special education teachers in supporting each building's efforts to meet the needs of students who have mild disabilities and students who are considered at-risk.

5. The identification of the roles which should be played by the building administrator in supporting each building's efforts to meet the needs of students who have mild disabilities and students who are considered at-risk.

6. The identification of the roles which should be played by intermediate agency support service staff in supporting each building's efforts to meet the needs of students who have mild disabilities and students who are considered at-risk.

NOTE: In those schools where students with moderate and/or severe/profound disabilities receive their education, these activities are also recommended.

Through the process just described, each school building would essentially have developed a LRE philosophy individualized to that building. More importantly, however, is what school personnel will do with this information. School "policies" are management procedures which set a definite course or method of action, which should be closely aligned with the stated school philosophies. Often times, gaps exist between the philosophies as stated and the policies established, creating situations whereby a desired outcome is unattainable. It is not enough for a school to have just a LRE philosophy without policies which allow or direct plans of action to achieve the desired outcome of ensuring that students are truly served in the LRE. In most instances, new policies or operating procedures will emerge from these activities. As a result, the organizational structure of the school may require alterations to allow the new procedures to be implemented. Anyone who has worked in the school environment will recognize the unique identity and atmosphere of individual schools. Every organization has its unique priorities. These priorities reflect the written and unwritten values and needs of the school. They will further reflect the roles teachers fill in the school, the time they will have to fulfill various responsibilities, and will, in turn, ultimately affect the degree to which innovation/change will succeed or fail. Again, while it is not necessary to totally revamp the school structure to accommodate a LRE plan, it may be necessary to make alterations in the structure to allow for the attainment of the goals and objectives of the LRE plan.

Regular educators are the most critical personnel in affecting quality experiences for students with disabilities and at-risk students. This often maligned group of educators has endured substantive changes in the philosophical view governing special education and the resultant LRE issues. Grossly remiss is the realization that regular educators are currently instructing students who eventually become the adult "normal" population of tomorrow's society. This group we would expect to be heterogeneous in nature as a result of our combined efforts. Failing to take advantage of the expertise that regular educators offer regarding who will be the normal adult population of the future and what they will look like will only serve to further impede the attainment of educating students in the LRE. Thus, general educators must be involved at every level of problem-solving and decision making regarding LRE plans, policies, and strategies. Further, it seems important to acknowledge that the student population of a building is transient; they move through our system encountering different teachers with differing strengths. Educating a student in the LRE is a year by year proposition. To reiterate, the determination of the most appropriate instructional and/or support option in the LRE to meet the unique and individual needs of a student is not a "one shot deal."

The changing needs of the student, differing strengths of newly encountered teachers, different regular education student class makeups, etc., are critical factors to delivering services to students in the LRE. The reader is cautioned to not interpret these statements as permission to allow current configurations of the local districts or intermediate education agencies service delivery system to dictate instructional and/or support service options. Worse yet, is to recommend an instructional and/or support service option for a student base solely upon the disabling condition of the students. Again, of primary importance is the identification of the needs of the student, how are those needs going to be met, and how are those interventions going to monitored to ensure their continuing to meet the needs of the student? The answers to these questions must be reflected in, and essentially become, the student's IEP.

The development of a student's IEP is the responsibility of the multidisciplinary staffing team. This probably comes as a shock to teachers who find themselves developing a dozen IEPs on the night before conferences, but supporting the notion that each school is uniquely different from all others, it is easy to accept that staffing procedures would also be quite different. Unfortunately, many schools, perhaps unintentionally, fail to conduct staffings in a manner that would greatly enhance the delivery of services in the LRE. Special education must be made available to all students requiring special education between birth and the age of twenty-one. Local schools are charged by law to identify, evaluate and appropriately place students with disabilities to ensure that full educational opportunities are provided to students in need of special education. The multidisciplinary staffing team has a legal obligation to: 1) determine a student's eligibility for special education programs, and 2) determine placement based on the identified needs of the student. It is important to note and remind multidisciplinary staffing team members that their legal obligation is to the student. From time to time this concept may become lost in the shuffle as teams attempt to address the school's, teachers' or parents' special concerns. A multidisciplinary staffing team must address the unique and special needs of the student and not allow other considerations to interfere. If staffing teams do allow these other considerations to interfere, then they have grossly jeopardized the student's right to a quality education.

The sequence of events which should occur during a staffing are more easily guaranteed when a printed "staffing agenda" is provided to staffing team members. The agenda, properly followed, enables the multidisciplinary staffing team to guard against other factors interfering with the legal obligation of the team. The determination of the most appropriate program option must be the last formal step taken during a staffing.

During the past three years, Fisher Elementary, Marshalltown Community School District, Marshalltown, Iowa, participated in the Mainstreaming: Home/School Integrated Intervention Grant, #G008400628. Three innovative projects were developed and implemented; one of which was the establishment of building-wide procedures to govern the delivery of services to students with disabilities including the following Initial Staffing Agenda:

1. Introductions (chairperson)

2. Purpose of staffing (chairperson)

3. Parent rights, parents role in staffing (chairperson)

4. Reason for referral - Statement of problem (person making referral)

5. Classroom performance and classroom modifications (classroom teacher)

6. Evaluation results and their meaning (staffing team)

7. Determine eligibility for services (staffing team)

8. Building the IEP (staffing team)

   a. Goals and objectives
      -special education
      -regular education
      -home

9. Discuss program options (staffing team)

10. Determine appropriate option (staffing team)

11. Summary (chairperson)

As is readily apparent, the determination of eligibility, IEP development, and a discussion of program options occurs prior to the determination and selection of appropriate instructional and/or support options. Unfortunately, many schools select the instructional and/or support options after the determination of eligibility and before the development of the IEP and discussion of service options. When this occurs, the multidisciplinary staffing team has jeopardized the delivery of the student's IEP in the LRE. It is not that the student will not benefit from the proposed placement or services which are to be delivered, but the quality of the match between the needs of the student and services available becomes secondary. The student is being placed in an already existing program with other students who are "like" him/her. Therefore the program which will be delivered to the new student will be "like" the program the other students receive. What is "special" about special education if everything is like everything else? How about the individualized education plan? People respond that it is up to the teacher to develop the program differences for the students in the teacher's class, but then the question is "What happened to the team?".

When decisions are based on this type of thinking a continuum of service options for instruction become apparent. Though differences exist, the continuum usually includes the following program models:

Continuum of Instructional Programs

Least Restrictive

1. regular classroom

2. regular classroom, with modifications to the curriculum

3. regular classroom, with consultative assistance for the student being provided by a special education teacher

4. regular classroom, with resource room pull-out for student

5. special education self-contained classroom with some mainstreaming or social integration opportunities (home school)

6. special education self-contained classroom (home school)

7. special education self-contained classroom (separate school)

8. instruction provided in home or hospital setting

Most Restrictive

The difficulty with this continuum is that it does not allow for certain elements of the "match" between the needs of the student and instructional and/or support options to be considered. An example would be if a secondary student was in definite need of special education services for the areas of match and reading, but was able to do fine in two vocational education classes (because of the hands-on activities and verbal directions), sang in the chorus (even though he could not read, but had a great memory), and worked in a vocational outreach program two days a week in the community. What program model is this student assigned? What if the student also has some social, behavioral, or family needs requiring the assistance of support service personnel. It is difficult to try to fit into the schedule of a student when a placement has already been made.

Understanding the realities of the system and how it works is one thing, but to sacrifice the individualization of developing a program which meets the instructional and support needs of a student is not acceptable. Therefore we would recommend as a starting point that the next time the reader is involved in the development of a student IEP or a staffing of a student, attention be given to the utilization of the LRE Skill Sheet displayed in Figure 1. By completing this sheet for each skill or goal that is being considered for the student, the parts of the puzzle will start to fit together and sound decisions to ensure quality matches can be made more confidently.

Before we continue with the analysis of this sheet, let us clarify the issue of support services. Throughout this chapter we have referred to not just instructional program options, but instructional and/or support service options. As stated in Chapter 1, the students that we are involved with in the area of mental disabilities are an ever changing population. Many of these students do not just have academic difficulties. Many of their adaptive difficulties stem from social, behavioral, or home situations which complicate their ability to learn. Educators must realize that prescriptive programming for these students does not just include provision of an instructional setting where something "special" takes place. The expertise of support service personnel must be taken into consideration as prescriptive programs are developed.

Figure 1

LRE Skill Sheet

Student's Name:____

Date:______________________

Area/Domain:	Skill # __	Skill # __
WHAT is the skill to be taught?		
WHY is the skill being taught? (PURPOSE)		
WHAT is the student's current level of performance with regard to this skill?		
WHERE/HOW will skill be used in the future?		
WHERE should instruction occur now?		
WHAT instructional staff need to be involved?		
WHAT support service staff need to be involved?		
WHAT level of support service is needed for this skill to be taught?		
WHO will be working with the student and responsible for monitoring progress of this skill?		

Support services could include, but are not limited to the following:

1. Assessment of ongoing student behavior, processes and environmental factors effecting learning and behaviors.
2. Consulting with teachers, parents or others to design specialized intervention programs to assist students to change behavior.
3. Counseling with parents or students in individual or group settings as a means of understanding and coping with problematic situations.
4. Skill training with students through specific therapy and behavioral practice intended to improve student performance.
5. Modifying curriculum with parents or teachers to teach and support acquisition, maintenance, and generalization of skills.
6. Researching program effectiveness with teachers and administrators to determine the effects of instructional programs on the learning and behavioral patterns of students.

As with instructional alternatives, there are three differing levels of involvement within which support services can be delivered. Beginning with the least restrictive they are:

1. Pre-referral services being provided by regular education teachers or parents, in consultation with support service personnel, as an attempt to resolve behavior or learning problems before considering special education instructional programs.
2. Integrated services being provided, after determining the student's eligibility for special education, by support service personnel working in the regular or special education program or provided by regular or special education personnel with support service consultation.
3. Pullout services being provided directly by support service personnel after determining the student's eligibility for special education, working with the student outside of the classroom environment.

The law requires an integrated IEP; not one for instructional needs and one for support needs. Having this knowledge should help multidisciplinary staffing teams on initial placements or teachers involved with annual reviews develop comprehensive individualized education programs for students which match student's needs with appropriate instructional services, support services, or a combination of both.

By completing the LRE Skill Sheet for each skill or objective, obvious patterns begin to form regarding, who is involved with the student's program, where most of the instruction on the goals will take place, and who is responsible for monitoring the student's growth. Analysis of the pattern will then allow the multidisciplinary team to make recommendations on where the student could be "based" that is least restrictive, but not at the expense of sacrificing the quality of the student's instructional or support needs.

With the recent developments of accommodation programs for students with mild disabilities, it is becoming clear that future programming alternatives may not be similar to what educators have become accustomed to in the past. Students with mild to profound disabilities may have as their homeroom base a special education resource room, but see their days filled with mainstreamed classes and social interactions within their home schools, community based instruction experiences, and vocational classes in technical or community college settings.

Now is the time for creativity as we continue to develop alternatives to present delivery systems. To be prescriptive the educational system must be flexible to meet the needs of students and yet be allowed to function in an organized fashion. Striking the balance is possible for programming of students with mental disabilities. The key is to press for programming to be in the least restrictive environment while not diminishing the effectiveness of the match between the needs of students and appropriate instructional and/or support services.